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<110>   F. Hoffmann-La Roche AG

<120>   RA antigenic peptides

<130>   21796

<160>   141

<170>   PatentIn version 3.2

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<213>   Homo sapiens

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Gly Asp Arg Gly Met Gln Leu Met His Ala Asn Ala Gln Arg
1               5                   10


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<400>   2

Gly Asp Arg Gly Met Gln Leu Met His Ala Asn Ala Gln Arg Thr Asp
1               5                   10                  15

Ala


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Gly Asp Arg Gly Met Gln Leu Met His Ala Asn Ala Gln Arg Thr Asp
1               5                   10                  15


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Ile Asn Asn Gln Leu Thr Leu Asp Ser Asn Thr Lys Tyr Phe His Lys
1               5                   10                  15


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Ile Asn Asn Gln Leu Thr Leu Asp Ser Asn Thr Lys Tyr Phe His Lys
1               5                   10                  15
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Leu

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Met Pro Lys Asn Val Val Phe Val Ile Asp Lys Ser Gly Ser Met Ser
1   5   10   15

Gly Arg Lys

<210>   7
<211>   18
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<400>   7

Met Pro Lys Asn Val Val Phe Val Ile Asp Lys Ser Gly Ser Met Ser
1   5   10   15

Gly Arg

<210>   8
<211>   17
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<213>   Homo sapiens

<400>   8

Met Pro Lys Asn Val Val Phe Val Ile Asp Lys Ser Gly Ser Met Ser
1   5   10   15

Gly

<210>   9
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<213>   Homo sapiens

<400>   9

Asn Val Val Phe Val Ile Asp Lys Ser Gly Ser Met Ser Gly
1   5   10

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Lys Asn Val Val Phe Val Ile Asp Lys Ser Gly Ser Met Ser Gly
1   5   10   15

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Asn Val Val Phe Val Ile Asp Lys Ser Gly Ser Met Ser Gly Arg
1   5   10   15

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Asn Val Val Phe Val Ile Asp Lys Ser Gly Ser Met Ser Gly Arg Lys
1   5   10   15

<210>   13
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<400>   13

Gly His Pro Gln Tyr Leu Leu Asp Ser Asn Ser Trp Ile Glu Glu
1   5   10   15

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<213>   Homo sapiens

<400>   14

Gly His Pro Gln Tyr Leu Leu Asp Ser Asn Ser Trp Ile Glu Glu Met
1   5   10   15

<210>   15
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<213>   Homo sapiens

<400>   15

Gly His Pro Gln Tyr Leu Leu Asp Ser Asn Ser Trp Ile Glu
1   5   10

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<400>   16

Gly His Pro Gln Tyr Leu Leu Asp Ser Asn Ser Trp Ile Glu Glu Met
1   5   10   15

Pro Ser

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<400>    17

His Pro Gln Tyr Leu Leu Asp Ser Asn Ser Trp Ile Glu
1                5                   10


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Gly His Pro Gln Tyr Leu Leu Asp Ser Asn Ser Trp
1                5                   10


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Gly Val Asp Arg Tyr Ile Ser Lys Tyr Glu Leu Asp Lys Ala Phe Ser
1                5                   10                  15

Asp Arg Asn


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<213>    Homo sapiens

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Arg Tyr Ile Ser Lys Tyr Glu Leu Asp Lys Ala Phe Ser Asp Arg
1                5                   10                  15


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<400>    21

Ile Ser Lys Tyr Glu Leu Asp Lys Ala Phe Ser Asp Arg Asn
1                5                   10


<210>    22
<211>    15
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<213>    Homo sapiens

<400>    22

Ile Ser Lys Tyr Glu Leu Asp Lys Ala Phe Ser Asp Arg Asn Thr
1                5                   10                  15
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<213>   Homo sapiens

<400>   23

Ile Ser Lys Tyr Glu Leu Asp Lys Ala Phe Ser Asp Arg
1               5                   10


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<211>   16
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<213>   Homo sapiens

<400>   24

Gly Ser Arg Glu Ile Lys Ser Gln Gln Ser Glu Val Thr Arg Ile Leu
1               5                   10                  15


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<213>   Homo sapiens

<400>   25

Arg Glu Ile Lys Ser Gln Gln Ser Glu Val Thr Arg
1               5                   10


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<213>   Homo sapiens

<400>   26

Gly Ser Arg Glu Ile Lys Ser Gln Gln Ser Glu Val Thr Arg
1               5                   10


<210>   27
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<213>   Homo sapiens

<400>   27

Arg Glu Ile Lys Ser Gln Gln Ser Glu Val Thr Arg Ile Leu
1               5                   10


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<211>   17
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<213>   Homo sapiens

<400>   28

Gly Pro His Asp Val His Val Gln Ile Glu Thr Ser Pro Pro Ala Arg
1               5                   10                  15

Asn
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<400>  29

Gly Pro His Asp Val His Val Gln Ile Glu Thr Ser Pro Pro Ala Arg
1               5                   10              15


Asn Leu Lys



<210>  30
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<213>  Homo sapiens

<400>  30

Gly Pro His Asp Val His Val Gln Ile Glu Thr Ser Pro Pro Ala Arg
1               5                   10              15



<210>  31
<211>  18
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<213>  Homo sapiens

<400>  31

Thr Pro His Gly Ile Ile Leu Asp Ser Val Asp Ala Ala Phe Ile Cys
1               5                   10              15


Pro Gly



<210>  32
<211>  17
<212>  PRT
<213>  Homo sapiens

<400>  32

Thr Pro His Gly Ile Ile Leu Asp Ser Val Asp Ala Ala Phe Ile Cys
1               5                   10              15


Pro



<210>  33
<211>  13
<212>  PRT
<213>  Homo sapiens

<400>  33

Thr Pro His Gly Ile Ile Leu Asp Ser Val Asp Ala Ala
1               5                   10



<210>  34
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<211>   14
<212>   PRT
<213>   Homo sapiens

<400>   34

Gly Thr Pro His Gly Ile Ile Leu Asp Ser Val Asp Ala Ala
1               5                   10


<210>   35
<211>   15
<212>   PRT
<213>   Homo sapiens

<400>   35

Thr Pro His Gly Ile Ile Leu Asp Ser Val Asp Ala Ala Phe Ile
1               5                   10                  15


<210>   36
<211>   18
<212>   PRT
<213>   Homo sapiens

<400>   36

Ile Asp Lys Glu Gly Val Ile Glu Pro Asp Thr Asp Ala Pro Gln Glu
1               5                   10                  15


Met Gly


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<211>   15
<212>   PRT
<213>   Homo sapiens

<400>   37

Lys Glu Gly Val Ile Glu Pro Asp Thr Asp Ala Pro Gln Glu Met
1               5                   10                  15


<210>   38
<211>   16
<212>   PRT
<213>   Homo sapiens

<400>   38

Ile Asp Lys Glu Gly Val Ile Glu Pro Asp Thr Asp Ala Pro Gln Glu
1               5                   10                  15


<210>   39
<211>   15
<212>   PRT
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<400>   39

Asp Lys Glu Gly Val Ile Glu Pro Asp Thr Asp Ala Pro Gln Glu
1               5                   10                  15


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Leu Leu Leu Phe Leu Pro Pro Leu Leu Leu Leu Asp Val Pro Thr
                20   25   30

Ala Ala Val Gln Ala Ser Pro Leu Gln Ala Leu Asp Phe Phe Gly Asn
        35   40   45

Gly Pro Pro Val Asn Tyr Lys Thr Gly Asn Leu Tyr Leu Arg Gly Pro
    50   55   60

Leu Lys Lys Ser Asn Ala Pro Leu Val Asn Val Thr Leu Tyr Tyr Glu
65   70   75   80

Ala Leu Cys Gly Gly Cys Arg Ala Phe Leu Ile Arg Glu Leu Phe Pro
            85   90   95

Thr Trp Leu Leu Val Met Glu Ile Leu Asn Val Thr Leu Val Pro Tyr
            100   105   110

Gly Asn Ala Gln Glu Gln Asn Val Ser Gly Arg Trp Glu Phe Lys Cys
            115   120   125

Gln His Gly Glu Glu Glu Cys Lys Phe Asn Lys Val Glu Ala Cys Val
    130   135   140

Leu Asp Glu Leu Asp Met Glu Leu Ala Phe Leu Thr Ile Val Cys Met
145   150   155   160

Glu Glu Phe Glu Asp Met Glu Arg Ser Leu Pro Leu Cys Leu Gln Leu
                165   170   175

Tyr Ala Pro Gly Leu Ser Pro Asp Thr Ile Met Glu Cys Ala Met Gly
            180   185   190

Asp Arg Gly Met Gln Leu Met His Ala Asn Ala Gln Arg Thr Asp Ala
            195   200   205

Leu Gln Pro Pro His Glu Tyr Val Pro Trp Val Thr Val Asn Gly Lys
    210   215   220

Pro Leu Glu Asp Gln Thr Gln Leu Leu Thr Leu Val Cys Gln Leu Tyr
225   230   235   240

Gln Gly Lys Lys Pro Asp Val Cys Pro Ser Ser Thr Ser Ser Leu Arg
                    245   250   255

Ser Val Cys Phe Lys
                260

<210> 41
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<300>
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<309> 1986-11-01
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Met Asp Pro Pro Arg Pro Ala Leu Leu Ala Leu Leu Ala Leu Pro Ala
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Leu Leu Leu Leu Leu Leu Ala Gly Ala Arg Ala Glu Glu Glu Met Leu
            20   25   30

Glu Asn Val Ser Leu Val Cys Pro Lys Asp Ala Thr Arg Phe Lys His
        35   40   45

Leu Arg Lys Tyr Thr Tyr Asn Tyr Glu Ala Glu Ser Ser Ser Gly Val
        50   55   60

Pro Gly Thr Ala Asp Ser Arg Ser Ala Thr Arg Ile Asn Cys Lys Val
65   70   75   80

Glu Leu Glu Val Pro Gln Leu Cys Ser Phe Ile Leu Lys Thr Ser Gln
                85   90   95

Cys Thr Leu Lys Glu Val Tyr Gly Phe Asn Pro Glu Gly Lys Ala Leu
            100   105   110

Leu Lys Lys Thr Lys Asn Ser Glu Glu Phe Ala Ala Ala Met Ser Arg
            115   120   125

Tyr Glu Leu Lys Leu Ala Ile Pro Glu Gly Lys Gln Val Phe Leu Tyr
        130   135   140

Pro Glu Lys Asp Glu Pro Thr Tyr Ile Leu Asn Ile Lys Arg Gly Ile
145   150   155   160

Ile Ser Ala Leu Leu Val Pro Pro Glu Thr Glu Glu Ala Lys Gln Val
                165   170   175

Leu Phe Leu Asp Thr Val Tyr Gly Asn Cys Ser Thr His Phe Thr Val
                180   185   190

Lys Thr Arg Lys Gly Asn Val Ala Thr Glu Ile Ser Thr Glu Arg Asp

```
                    195                    200                    205

         Leu Gly Gln Cys Asp Arg Phe Lys Pro Ile Arg Thr Gly Ile Ser Pro
    5        210             215             220

         Leu Ala Leu Ile Lys Gly Met Thr Arg Pro Leu Ser Thr Leu Ile Ser
         225             230             235             240
   10

         Ser Ser Gln Ser Cys Gln Tyr Thr Leu Asp Ala Lys Arg Lys His Val
                         245             250             255

   15
         Ala Glu Ala Ile Cys Lys Glu Gln His Leu Phe Leu Pro Phe Ser Tyr
                     260             265             270

         Asn Asn Lys Tyr Gly Met Val Ala Gln Val Thr Gln Thr Leu Lys Leu
   20        275             280             285

         Glu Asp Thr Pro Lys Ile Asn Ser Arg Phe Phe Gly Glu Gly Thr Lys
   25        290             295             300

         Lys Met Gly Leu Ala Phe Glu Ser Thr Lys Ser Thr Ser Pro Pro Lys
         305             310             315             320
   30

         Gln Ala Glu Ala Val Leu Lys Thr Leu Gln Glu Leu Lys Lys Leu Thr
                     325             330             335

   35
         Ile Ser Glu Gln Asn Ile Gln Arg Ala Asn Leu Phe Asn Lys Leu Val
                     340             345             350

   40    Thr Glu Leu Arg Gly Leu Ser Asp Glu Ala Val Thr Ser Leu Leu Pro
                     355             360             365

         Gln Leu Ile Glu Val Ser Ser Pro Ile Thr Leu Gln Ala Leu Val Gln
   45        370             375             380

         Cys Gly Gln Pro Gln Cys Ser Thr His Ile Leu Gln Trp Leu Lys Arg
         385             390             395             400
   50

         Val His Ala Asn Pro Leu Leu Ile Asp Val Val Thr Tyr Leu Val Ala
                         405             410             415

   55
         Leu Ile Pro Glu Pro Ser Ala Gln Gln Leu Arg Glu Ile Phe Asn Met
                     420             425             430

   60    Ala Arg Asp Gln Arg Ser Arg Ala Thr Leu Tyr Ala Leu Ser His Ala
                     435             440             445

         Val Asn Asn Tyr His Lys Thr Asn Pro Thr Gly Thr Gln Glu Leu Leu
   65        450             455             460

         Asp Ile Ala Asn Tyr Leu Met Glu Gln Ile Gln Asp Asp Cys Thr Gly
         465             470             475             480
   70
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Asp Glu Asp Tyr Thr Tyr Leu Ile Leu Arg Val Ile Gly Asn Met Gly
                485   490   495

5

Gln Thr Met Glu Gln Leu Thr Pro Glu Leu Lys Ser Ser Ile Leu Lys
            500   505   510

10

Cys Val Gln Ser Thr Lys Pro Ser Leu Met Ile Gln Lys Ala Ala Ile
            515   520   525

Gln Ala Leu Arg Lys Met Glu Pro Lys Asp Lys Asp Gln Glu Val Leu
            530   535   540

15

Leu Gln Thr Phe Leu Asp Asp Ala Ser Pro Gly Asp Lys Arg Leu Ala
545   550   555   560

20

Ala Tyr Leu Met Leu Met Arg Ser Pro Ser Gln Ala Asp Ile Asn Lys
            565   570   575

25

Ile Val Gln Ile Leu Pro Trp Glu Gln Asn Glu Gln Val Lys Asn Phe
            580   585   590

30

Val Ala Ser His Ile Ala Asn Ile Leu Asn Ser Glu Glu Leu Asp Ile
            595   600   605

Gln Asp Leu Lys Lys Leu Val Lys Glu Ala Leu Lys Glu Ser Gln Leu
    610   615   620

35

Pro Thr Val Met Asp Phe Arg Lys Phe Ser Arg Asn Tyr Gln Leu Tyr
625   630   635   640

40

Lys Ser Val Ser Leu Pro Ser Leu Asp Pro Ala Ser Ala Lys Ile Glu
            645   650   655

45

Gly Asn Leu Ile Phe Asp Pro Asn Asn Tyr Leu Pro Lys Glu Ser Met
            660   665   670

50

Leu Lys Thr Thr Leu Thr Ala Phe Gly Phe Ala Ser Ala Asp Leu Ile
        675   680   685

Glu Ile Gly Leu Glu Gly Lys Gly Phe Glu Pro Thr Leu Glu Ala Leu
        690   695   700

55

Phe Gly Lys Gln Gly Phe Phe Pro Asp Ser Val Asn Lys Ala Leu Tyr
705   710   715   720

60

Trp Val Asn Gly Gln Val Pro Asp Gly Val Ser Lys Val Leu Val Asp
            725   730   735

65

His Phe Gly Tyr Thr Lys Asp Asp Lys His Glu Gln Asp Met Val Asn
            740   745   750

70

Gly Ile Met Leu Ser Val Glu Lys Leu Ile Lys Asp Leu Lys Ser Lys

12

755   760   765

5   Glu Val Pro Glu Ala Arg Ala Tyr Leu Arg Ile Leu Gly Glu Glu Leu
           770   775   780

10   Gly Phe Ala Ser Leu His Asp Leu Gln Leu Leu Gly Lys Leu Leu Leu
       785   790   795   800

       Met Gly Ala Arg Thr Leu Gln Gly Ile Pro Gln Met Ile Gly Glu Val
                   805   810   815

15   Ile Arg Lys Gly Ser Lys Asn Asp Phe Phe Leu His Tyr Ile Phe Met
                   820   825   830

20   Glu Asn Ala Phe Glu Leu Pro Thr Gly Ala Gly Leu Gln Leu Gln Ile
               835   840   845

25   Ser Ser Ser Gly Val Ile Ala Pro Gly Ala Lys Ala Gly Val Lys Leu
           850   855   860

       Glu Val Ala Asn Met Gln Ala Glu Leu Val Ala Lys Pro Ser Val Ser
       865   870   875   880

30   Val Glu Phe Val Thr Asn Met Gly Ile Ile Ile Pro Asp Phe Ala Arg
                   885   890   895

35   Ser Gly Val Gln Met Asn Thr Asn Phe Phe His Glu Ser Gly Leu Glu
                   900   905   910

40   Ala His Val Ala Leu Lys Ala Gly Lys Leu Lys Phe Ile Ile Pro Ser
               915   920   925

45   Pro Lys Arg Pro Val Lys Leu Leu Ser Gly Gly Asn Thr Leu His Leu
           930   935   940

       Val Ser Thr Thr Lys Thr Glu Val Ile Pro Pro Leu Ile Glu Asn Arg
       945   950   955   960

50   Gln Ser Trp Ser Val Cys Lys Gln Val Phe Pro Gly Leu Asn Tyr Cys
                   965   970   975

55   Thr Ser Gly Ala Tyr Ser Asn Ala Ser Ser Thr Asp Ser Ala Ser Tyr
               980   985   990

60   Tyr Pro Leu Thr Gly Asp Thr Arg Leu Glu Leu Glu Leu Arg Pro Thr
               995   1000   1005

65   Gly Glu Ile Glu Gln Tyr Ser Val Ser Ala Thr Tyr Glu Leu Gln
           1010   1015   1020

70   Arg Glu Asp Arg Ala Leu Val Asp Thr Leu Lys Phe Val Thr Gln
           1025   1030   1035

Ala Glu Gly Ala Lys Gln Thr Glu Ala Thr Met Thr Phe Lys Tyr
    1040   1045   1050

Asn Arg Gln Ser Met Thr Leu Ser Ser Glu Val Gln Ile Pro Asp
    1055   1060   1065

Phe Asp Val Asp Leu Gly Thr Ile Leu Arg Val Asn Asp Glu Ser
    1070   1075   1080

Thr Glu Gly Lys Thr Ser Tyr Arg Leu Thr Leu Asp Ile Gln Asn
    1085   1090   1095

Lys Lys Ile Thr Glu Val Ala Leu Met Gly His Leu Ser Cys Asp
    1100   1105   1110

Thr Lys Glu Glu Arg Lys Ile Lys Gly Val Ile Ser Ile Pro Arg
    1115   1120   1125

Leu Gln Ala Glu Ala Arg Ser Glu Ile Leu Ala His Trp Ser Pro
    1130   1135   1140

Ala Lys Leu Leu Leu Gln Met Asp Ser Ser Ala Thr Ala Tyr Gly
    1145   1150   1155

Ser Thr Val Ser Lys Arg Val Ala Trp His Tyr Asp Glu Glu Lys
    1160   1165   1170

Ile Glu Phe Glu Trp Asn Thr Gly Thr Asn Val Asp Thr Lys Lys
    1175   1180   1185

Met Thr Ser Asn Phe Pro Val Asp Leu Ser Asp Tyr Pro Lys Ser
    1190   1195   1200

Leu His Met Tyr Ala Asn Arg Leu Leu Asp His Arg Val Pro Glu
    1205   1210   1215

Thr Asp Met Thr Phe Arg His Val Gly Ser Lys Leu Ile Val Ala
    1220   1225   1230

Met Ser Ser Trp Leu Gln Lys Ala Ser Gly Ser Leu Pro Tyr Thr
    1235   1240   1245

Gln Thr Leu Gln Asp His Leu Asn Ser Leu Lys Glu Phe Asn Leu
    1250   1255   1260

Gln Asn Met Gly Leu Pro Asp Phe His Ile Pro Glu Asn Leu Phe
    1265   1270   1275

Leu Lys Ser Asp Gly Arg Val Lys Tyr Thr Leu Asn Lys Asn Ser
    1280   1285   1290

Leu Lys Ile Glu Ile Pro Leu Pro Phe Gly Gly Lys Ser Ser Arg

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          1295                1300                1305

      Asp Leu Lys Met Leu Glu Thr Val Arg Thr Pro Ala Leu His Phe
  5       1310                1315                1320

      Lys Ser Val Gly Phe His Leu Pro Ser Arg Glu Phe Gln Val Pro
 10       1325                1330                1335

      Thr Phe Thr Ile Pro Lys Leu Tyr Gln Leu Gln Val Pro Leu Leu
          1340                1345                1350

 15   Gly Val Leu Asp Leu Ser Thr Asn Val Tyr Ser Asn Leu Tyr Asn
          1355                1360                1365

 20   Trp Ser Ala Ser Tyr Ser Gly Gly Asn Thr Ser Thr Asp His Phe
          1370                1375                1380

      Ser Leu Arg Ala Arg Tyr His Met Lys Ala Asp Ser Val Val Asp
 25       1385                1390                1395

      Leu Leu Ser Tyr Asn Val Gln Gly Ser Gly Glu Thr Thr Tyr Asp
          1400                1405                1410
 30

      His Lys Asn Thr Phe Thr Leu Ser Cys Asp Gly Ser Leu Arg His
          1415                1420                1425
 35

      Lys Phe Leu Asp Ser Asn Ile Lys Phe Ser His Val Glu Lys Leu
          1430                1435                1440

 40   Gly Asn Asn Pro Val Ser Lys Gly Leu Leu Ile Phe Asp Ala Ser
          1445                1450                1455

      Ser Ser Trp Gly Pro Gln Met Ser Ala Ser Val His Leu Asp Ser
 45       1460                1465                1470

      Lys Lys Lys Gln His Leu Phe Val Lys Glu Val Lys Ile Asp Gly
          1475                1480                1485
 50

      Gln Phe Arg Val Ser Ser Phe Tyr Ala Lys Gly Thr Tyr Gly Leu
          1490                1495                1500
 55

      Ser Cys Gln Arg Asp Pro Asn Thr Gly Arg Leu Asn Gly Glu Ser
          1505                1510                1515

 60   Asn Leu Arg Phe Asn Ser Ser Tyr Leu Gln Gly Thr Asn Gln Ile
          1520                1525                1530

      Thr Gly Arg Tyr Glu Asp Gly Thr Leu Ser Leu Thr Ser Thr Ser
 65       1535                1540                1545

      Asp Leu Gln Ser Gly Ile Ile Lys Asn Thr Ala Ser Leu Lys Tyr
          1550                1555                1560
 70
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        Glu Asn  Tyr Glu Leu Thr Leu  Lys Ser Asp Thr Asn  Gly Lys Tyr
            1565                  1570              1575

 5

        Lys Asn  Phe Ala Thr Ser Asn  Lys Met Asp Met Thr  Phe Ser Lys
            1580                  1585              1590

10

        Gln Asn  Ala Leu Leu Arg Ser  Glu Tyr Gln Ala Asp  Tyr Glu Ser
            1595                  1600              1605

15

        Leu Arg  Phe Phe Ser Leu Leu  Ser Gly Ser Leu Asn  Ser His Gly
            1610                  1615              1620

        Leu Glu  Leu Asn Ala Asp Ile  Leu Gly Thr Asp Lys  Ile Asn Ser
            1625                  1630              1635

20

        Gly Ala  His Lys Ala Thr Leu  Arg Ile Gly Gln Asp  Gly Ile Ser
            1640                  1645              1650

25

        Thr Ser  Ala Thr Thr Asn Leu  Lys Cys Ser Leu Leu  Val Leu Glu
            1655                  1660              1665

        Asn Glu  Leu Asn Ala Glu Leu  Gly Leu Ser Gly Ala  Ser Met Lys
            1670                  1675              1680

30

        Leu Thr  Thr Asn Gly Arg Phe  Arg Glu His Asn Ala  Lys Phe Ser
            1685                  1690              1695

35

        Leu Asp  Gly Lys Ala Ala Leu  Thr Glu Leu Ser Leu  Gly Ser Ala
            1700                  1705              1710

40

        Tyr Gln  Ala Met Ile Leu Gly  Val Asp Ser Lys Asn  Ile Phe Asn
            1715                  1720              1725

45

        Phe Lys  Val Ser Gln Glu Gly  Leu Lys Leu Ser Asn  Asp Met Met
            1730                  1735              1740

        Gly Ser  Tyr Ala Glu Met Lys  Phe Asp His Thr Asn  Ser Leu Asn
            1745                  1750              1755

50

        Ile Ala  Gly Leu Ser Leu Asp  Phe Ser Ser Lys Leu  Asp Asn Ile
            1760                  1765              1770

55

        Tyr Ser  Ser Asp Lys Phe Tyr  Lys Gln Thr Val Asn  Leu Gln Leu
            1775                  1780              1785

60

        Gln Pro  Tyr Ser Leu Val Thr  Thr Leu Asn Ser Asp  Leu Lys Tyr
            1790                  1795              1800

65

        Asn Ala  Leu Asp Leu Thr Asn  Asn Gly Lys Leu Arg  Leu Glu Pro
            1805                  1810              1815

70

        Leu Lys  Leu His Val Ala Gly  Asn Leu Lys Gly Ala  Tyr Gln Asn
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              1820                 1825                 1830

 5     Asn Glu Ile Lys His Ile Tyr Ala Ile Ser Ser Ala Ala Leu Ser
           1835                1840                1845


       Ala Ser Tyr Lys Ala Asp Thr Val Ala Lys Val Gln Gly Val Glu
           1850                1855                1860
10

       Phe Ser His Arg Leu Asn Thr Asp Ile Ala Gly Leu Ala Ser Ala
           1865                1870                1875

15
       Ile Asp Met Ser Thr Asn Tyr Asn Ser Asp Ser Leu His Phe Ser
           1880                1885                1890


20     Asn Val Phe Arg Ser Val Met Ala Pro Phe Thr Met Thr Ile Asp
           1895                1900                1905


       Ala His Thr Asn Gly Asn Gly Lys Leu Ala Leu Trp Gly Glu His
25         1910                1915                1920


       Thr Gly Gln Leu Tyr Ser Lys Phe Leu Leu Lys Ala Glu Pro Leu
           1925                1930                1935
30

       Ala Phe Thr Phe Ser His Asp Tyr Lys Gly Ser Thr Ser His His
           1940                1945                1950

35
       Leu Val Ser Arg Lys Ser Ile Ser Ala Ala Leu Glu His Lys Val
           1955                1960                1965


40     Ser Ala Leu Leu Thr Pro Ala Glu Gln Thr Gly Thr Trp Lys Leu
           1970                1975                1980


       Lys Thr Gln Phe Asn Asn Asn Glu Tyr Ser Gln Asp Leu Asp Ala
45         1985                1990                1995


       Tyr Asn Thr Lys Asp Lys Ile Gly Val Glu Leu Thr Gly Arg Thr
           2000                2005                2010
50

       Leu Ala Asp Leu Thr Leu Leu Asp Ser Pro Ile Lys Val Pro Leu
           2015                2020                2025

55
       Leu Leu Ser Glu Pro Ile Asn Ile Ile Asp Ala Leu Glu Met Arg
           2030                2035                2040


60     Asp Ala Val Glu Lys Pro Gln Glu Phe Thr Ile Val Ala Phe Val
           2045                2050                2055


       Lys Tyr Asp Lys Asn Gln Asp Val His Ser Ile Asn Leu Pro Phe
65         2060                2065                2070


       Phe Glu Thr Leu Gln Glu Tyr Phe Glu Arg Asn Arg Gln Thr Ile
           2075                2080                2085
70
```

```
Ile Val  Val Val Glu Asn Val  Gln Arg Asn Leu Lys  His Ile Asn
    2090                 2095                 2100

Ile Asp  Gln Phe Val Arg Lys  Tyr Arg Ala Ala Leu  Gly Lys Leu
    2105                 2110                 2115

Pro Gln  Gln Ala Asn Asp Tyr  Leu Asn Ser Phe Asn  Trp Glu Arg
    2120                 2125                 2130

Gln Val  Ser His Ala Lys Glu  Lys Leu Thr Ala Leu  Thr Lys Lys
    2135                 2140                 2145

Tyr Arg  Ile Thr Glu Asn Asp  Ile Gln Ile Ala Leu  Asp Asp Ala
    2150                 2155                 2160

Lys Ile  Asn Phe Asn Glu Lys  Leu Ser Gln Leu Gln  Thr Tyr Met
    2165                 2170                 2175

Ile Gln  Phe Asp Gln Tyr Ile  Lys Asp Ser Tyr Asp  Leu His Asp
    2180                 2185                 2190

Leu Lys  Ile Ala Ile Ala Asn  Ile Ile Asp Glu Ile  Ile Glu Lys
    2195                 2200                 2205

Leu Lys  Ser Leu Asp Glu His  Tyr His Ile Arg Val  Asn Leu Val
    2210                 2215                 2220

Lys Thr  Ile His Asp Leu His  Leu Phe Ile Glu Asn  Ile Asp Phe
    2225                 2230                 2235

Asn Lys  Ser Gly Ser Ser Thr  Ala Ser Trp Ile Gln  Asn Val Asp
    2240                 2245                 2250

Thr Lys  Tyr Gln Ile Arg Ile  Gln Ile Gln Glu Lys  Leu Gln Gln
    2255                 2260                 2265

Leu Lys  Arg His Ile Gln Asn  Ile Asp Ile Gln His  Leu Ala Gly
    2270                 2275                 2280

Lys Leu  Lys Gln His Ile Glu  Ala Ile Asp Val Arg  Val Leu Leu
    2285                 2290                 2295

Asp Gln  Leu Gly Thr Thr Ile  Ser Phe Glu Arg Ile  Asn Asp Val
    2300                 2305                 2310

Leu Glu  His Val Lys His Phe  Val Ile Asn Leu Ile  Gly Asp Phe
    2315                 2320                 2325

Glu Val  Ala Glu Lys Ile Asn  Ala Phe Arg Ala Lys  Val His Glu
    2330                 2335                 2340

Leu Ile  Glu Arg Tyr Glu Val  Asp Gln Gln Ile Gln  Val Leu Met
```

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            2345                    2350                    2355

  5     Asp Lys Leu Val Glu Leu Thr His Gln Tyr Lys Leu Lys Glu Thr
            2360                    2365                    2370

 10     Ile Gln Lys Leu Ser Asn Val Leu Gln Gln Val Lys Ile Lys Asp
            2375                    2380                    2385

        Tyr Phe Glu Lys Leu Val Gly Phe Ile Asp Asp Ala Val Lys Lys
            2390                    2395                    2400
 15
        Leu Asn Glu Leu Ser Phe Lys Thr Phe Ile Glu Asp Val Asn Lys
            2405                    2410                    2415

 20     Phe Leu Asp Met Leu Ile Lys Lys Leu Lys Ser Phe Asp Tyr His
            2420                    2425                    2430

        Gln Phe Val Asp Glu Thr Asn Asp Lys Ile Arg Glu Val Thr Gln
 25         2435                    2440                    2445

        Arg Leu Asn Gly Glu Ile Gln Ala Leu Glu Leu Pro Gln Lys Ala
            2450                    2455                    2460
 30
        Glu Ala Leu Lys Leu Phe Leu Glu Glu Thr Lys Ala Thr Val Ala
            2465                    2470                    2475

 35     Val Tyr Leu Glu Ser Leu Gln Asp Thr Lys Ile Thr Leu Ile Ile
            2480                    2485                    2490

 40     Asn Trp Leu Gln Glu Ala Leu Ser Ser Ala Ser Leu Ala His Met
            2495                    2500                    2505

        Lys Ala Lys Phe Arg Glu Thr Leu Glu Asp Thr Arg Asp Arg Met
 45         2510                    2515                    2520

        Tyr Gln Met Asp Ile Gln Gln Glu Leu Gln Arg Tyr Leu Ser Leu
            2525                    2530                    2535
 50
        Val Gly Gln Val Tyr Ser Thr Leu Val Thr Tyr Ile Ser Asp Trp
            2540                    2545                    2550

 55     Trp Thr Leu Ala Ala Lys Asn Leu Thr Asp Phe Ala Glu Gln Tyr
            2555                    2560                    2565

 60     Ser Ile Gln Asp Trp Ala Lys Arg Met Lys Ala Leu Val Glu Gln
            2570                    2575                    2580

        Gly Phe Thr Val Pro Glu Ile Lys Thr Ile Leu Gly Thr Met Pro
 65         2585                    2590                    2595

        Ala Phe Glu Val Ser Leu Gln Ala Leu Gln Lys Ala Thr Phe Gln
            2600                    2605                    2610
 70
```

Thr Pro Asp Phe Ile Val Pro Leu Thr Asp Leu Arg Ile Pro Ser
    2615   2620   2625

Val Gln Ile Asn Phe Lys Asp Leu Lys Asn Ile Lys Ile Pro Ser
    2630   2635   2640

Arg Phe Ser Thr Pro Glu Phe Thr Ile Leu Asn Thr Phe His Ile
    2645   2650   2655

Pro Ser Phe Thr Ile Asp Phe Val Glu Met Lys Val Lys Ile Ile
    2660   2665   2670

Arg Thr Ile Asp Gln Met Gln Asn Ser Glu Leu Gln Trp Pro Val
    2675   2680   2685

Pro Asp Ile Tyr Leu Arg Asp Leu Lys Val Glu Asp Ile Pro Leu
    2690   2695   2700

Ala Arg Ile Thr Leu Pro Asp Phe Arg Leu Pro Glu Ile Ala Ile
    2705   2710   2715

Pro Glu Phe Ile Ile Pro Thr Leu Asn Leu Asn Asp Phe Gln Val
    2720   2725   2730

Pro Asp Leu His Ile Pro Glu Phe Gln Leu Pro His Ile Ser His
    2735   2740   2745

Thr Ile Glu Val Pro Thr Phe Gly Lys Leu Tyr Ser Ile Leu Lys
    2750   2755   2760

Ile Gln Ser Pro Leu Phe Thr Leu Asp Ala Asn Ala Asp Ile Gly
    2765   2770   2775

Asn Gly Thr Thr Ser Ala Asn Glu Ala Gly Ile Ala Ala Ser Ile
    2780   2785   2790

Thr Ala Lys Gly Glu Ser Lys Leu Glu Val Leu Asn Phe Asp Phe
    2795   2800   2805

Gln Ala Asn Ala Gln Leu Ser Asn Pro Lys Ile Asn Pro Leu Ala
    2810   2815   2820

Leu Lys Glu Ser Val Lys Phe Ser Ser Lys Tyr Leu Arg Thr Glu
    2825   2830   2835

His Gly Ser Glu Met Leu Phe Phe Gly Asn Ala Ile Glu Gly Lys
    2840   2845   2850

Ser Asn Thr Val Ala Ser Leu His Thr Glu Lys Asn Thr Leu Glu
    2855   2860   2865

Leu Ser Asn Gly Val Ile Val Lys Ile Asn Asn Gln Leu Thr Leu

                  2870   2875   2880

        Asp Ser Asn Thr Lys Tyr Phe His Lys Leu Asn Ile Pro Lys Leu
    5   2885   2890   2895

        Asp Phe Ser Ser Gln Ala Asp Leu Arg Asn Glu Ile Lys Thr Leu
   10   2900   2905   2910

        Leu Lys Ala Gly His Ile Ala Trp Thr Ser Ser Gly Lys Gly Ser
   15   2915   2920   2925

        Trp Lys Trp Ala Cys Pro Arg Phe Ser Asp Glu Gly Thr His Glu
   20   2930   2935   2940

        Ser Gln Ile Ser Phe Thr Ile Glu Gly Pro Leu Thr Ser Phe Gly
   25   2945   2950   2955

        Leu Ser Asn Lys Ile Asn Ser Lys His Leu Arg Val Asn Gln Asn
   30   2960   2965   2970

        Leu Val Tyr Glu Ser Gly Ser Leu Asn Phe Ser Lys Leu Glu Ile
   35   2975   2980   2985

        Gln Ser Gln Val Asp Ser Gln His Val Gly His Ser Val Leu Thr
            2990   2995   3000

        Ala Lys Gly Met Ala Leu Phe Gly Glu Gly Lys Ala Glu Phe Thr
   40   3005   3010   3015

        Gly Arg His Asp Ala His Leu Asn Gly Lys Val Ile Gly Thr Leu
   45   3020   3025   3030

        Lys Asn Ser Leu Phe Phe Ser Ala Gln Pro Phe Glu Ile Thr Ala
            3035   3040   3045

        Ser Thr Asn Asn Glu Gly Asn Leu Lys Val Arg Phe Pro Leu Arg
   50   3050   3055   3060

        Leu Thr Gly Lys Ile Asp Phe Leu Asn Asn Tyr Ala Leu Phe Leu
   55   3065   3070   3075

        Ser Pro Ser Ala Gln Gln Ala Ser Trp Gln Val Ser Ala Arg Phe
            3080   3085   3090

        Asn Gln Tyr Lys Tyr Asn Gln Asn Phe Ser Ala Gly Asn Asn Glu
   60   3095   3100   3105

        Asn Ile Met Glu Ala His Val Gly Ile Asn Gly Glu Ala Asn Leu
   65   3110   3115   3120

        Asp Phe Leu Asn Ile Pro Leu Thr Ile Pro Glu Met Arg Leu Pro
   70   3125   3130   3135

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          Tyr Thr  Ile Ile Thr Thr Pro  Pro Leu Lys Asp Phe  Ser Leu Trp
              3140              3145              3150

5
          Glu Lys  Thr Gly Leu Lys Glu  Phe Leu Lys Thr Thr  Lys Gln Ser
              3155              3160              3165

10
          Phe Asp  Leu Ser Val Lys Ala  Gln Tyr Lys Lys Asn  Lys His Arg
              3170              3175              3180

          His Ser  Ile Thr Asn Pro Leu  Ala Val Leu Cys Glu  Phe Ile Ser
15            3185              3190              3195

          Gln Ser  Ile Lys Ser Phe Asp  Arg His Phe Glu Lys  Asn Arg Asn
              3200              3205              3210
20
          Asn Ala  Leu Asp Phe Val Thr  Lys Ser Tyr Asn Glu  Thr Lys Ile
              3215              3220              3225
25
          Lys Phe  Asp Lys Tyr Lys Ala  Glu Lys Ser His Asp  Glu Leu Pro
              3230              3235              3240

30
          Arg Thr  Phe Gln Ile Pro Gly  Tyr Thr Val Pro Val  Val Asn Val
              3245              3250              3255

          Glu Val  Ser Pro Phe Thr Ile  Glu Met Ser Ala Phe  Gly Tyr Val
35            3260              3265              3270

          Phe Pro  Lys Ala Val Ser Met  Pro Ser Phe Ser Ile  Leu Gly Ser
              3275              3280              3285
·40
          Asp Val  Arg Val Pro Ser Tyr  Thr Leu Ile Leu Pro  Ser Leu Glu
              3290              3295              3300
45
          Leu Pro  Val Leu His Val Pro  Arg Asn Leu Lys Leu  Ser Leu Pro
              3305              3310              3315

50
          His Phe  Lys Glu Leu Cys Thr  Ile Ser His Ile Phe  Ile Pro Ala
              3320              3325              3330

          Met Gly  Asn Ile Thr Tyr Asp  Phe Ser Phe Lys Ser  Ser Val Ile
55            3335              3340              3345

          Thr Leu  Asn Thr Asn Ala Glu  Leu Phe Asn Gln Ser  Asp Ile Val
              3350              3355              3360
60
          Ala His  Leu Leu Ser Ser Ser  Ser Ser Val Ile Asp  Ala Leu Gln
              3365              3370              3375
65
          Tyr Lys  Leu Glu Gly Thr Thr  Arg Leu Thr Arg Lys  Arg Gly Leu
              3380              3385              3390

70
          Lys Leu  Ala Thr Ala Leu Ser  Leu Ser Asn Lys Phe  Val Glu Gly
```

                    3395   3400   3405

5   Ser His Asn Ser Thr Val Ser Leu Thr Thr Lys Asn Met Glu Val
                 3410   3415   3420

             Ser Val Ala Lys Thr Thr Lys Ala Glu Ile Pro Ile Leu Arg Met
                 3425   3430   3435
10

             Asn Phe Lys Gln Glu Leu Asn Gly Asn Thr Lys Ser Lys Pro Thr
                 3440   3445   3450

15
             Val Ser Ser Ser Met Glu Phe Lys Tyr Asp Phe Asn Ser Ser Met
                 3455   3460   3465

20   Leu Tyr Ser Thr Ala Lys Gly Ala Val Asp His Lys Leu Ser Leu
                 3470   3475   3480

             Glu Ser Leu Thr Ser Tyr Phe Ser Ile Glu Ser Ser Thr Lys Gly
25   3485   3490   3495

             Asp Val Lys Gly Ser Val Leu Ser Arg Glu Tyr Ser Gly Thr Ile
                 3500   3505   3510
30

             Ala Ser Glu Ala Asn Thr Tyr Leu Asn Ser Lys Ser Thr Arg Ser
                 3515   3520   3525

35
             Ser Val Lys Leu Gln Gly Thr Ser Lys Ile Asp Asp Ile Trp Asn
                 3530   3535   3540

40   Leu Glu Val Lys Glu Asn Phe Ala Gly Glu Ala Thr Leu Gln Arg
                 3545   3550   3555

             Ile Tyr Ser Leu Trp Glu His Ser Thr Lys Asn His Leu Gln Leu
45   3560   3565   3570

             Glu Gly Leu Phe Phe Thr Asn Gly Glu His Thr Ser Lys Ala Thr
                 3575   3580   3585
50

             Leu Glu Leu Ser Pro Trp Gln Met Ser Ala Leu Val Gln Val His
                 3590   3595   3600

55
             Ala Ser Gln Pro Ser Ser Phe His Asp Phe Pro Asp Leu Gly Gln
                 3605   3610   3615

60   Glu Val Ala Leu Asn Ala Asn Thr Lys Asn Gln Lys Ile Arg Trp
                 3620   3625   3630

             Lys Asn Glu Val Arg Ile His Ser Gly Ser Phe Gln Ser Gln Val
65   3635   3640   3645

             Glu Leu Ser Asn Asp Gln Glu Lys Ala His Leu Asp Ile Ala Gly
                 3650   3655   3660
70

Ser Leu Glu Gly His Leu Arg Phe Leu Lys Asn Ile Ile Leu Pro
    3665   3670   3675

Val Tyr Asp Lys Ser Leu Trp Asp Phe Leu Lys Leu Asp Val Thr
    3680   3685   3690

Thr Ser Ile Gly Arg Arg Gln His Leu Arg Val Ser Thr Ala Phe
    3695   3700   3705

Val Tyr Thr Lys Asn Pro Asn Gly Tyr Ser Phe Ser Ile Pro Val
    3710   3715   3720

Lys Val Leu Ala Asp Lys Phe Ile Thr Pro Gly Leu Lys Leu Asn
    3725   3730   3735

Asp Leu Asn Ser Val Leu Val Met Pro Thr Phe His Val Pro Phe
    3740   3745   3750

Thr Asp Leu Gln Val Pro Ser Cys Lys Leu Asp Phe Arg Glu Ile
    3755   3760   3765

Gln Ile Tyr Lys Lys Leu Arg Thr Ser Ser Phe Ala Leu Asn Leu
    3770   3775   3780

Pro Thr Leu Pro Glu Val Lys Phe Pro Glu Val Asp Val Leu Thr
    3785   3790   3795

Lys Tyr Ser Gln Pro Glu Asp Ser Leu Ile Pro Phe Phe Glu Ile
    3800   3805   3810

Thr Val Pro Glu Ser Gln Leu Thr Val Ser Gln Phe Thr Leu Pro
    3815   3820   3825

Lys Ser Val Ser Asp Gly Ile Ala Ala Leu Asp Leu Asn Ala Val
    3830   3835   3840

Ala Asn Lys Ile Ala Asp Phe Glu Leu Pro Thr Ile Ile Val Pro
    3845   3850   3855

Glu Gln Thr Ile Glu Ile Pro Ser Ile Lys Phe Ser Val Pro Ala
    3860   3865   3870

Gly Ile Val Ile Pro Ser Phe Gln Ala Leu Thr Ala Arg Phe Glu
    3875   3880   3885

Val Asp Ser Pro Val Tyr Asn Ala Thr Trp Ser Ala Ser Leu Lys
    3890   3895   3900

Asn Lys Ala Asp Tyr Val Glu Thr Val Leu Asp Ser Thr Cys Ser
    3905   3910   3915

Ser Thr Val Gln Phe Leu Glu Tyr Glu Leu Asn Val Leu Gly Thr

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                   3920                    3925                    3930

              His Lys Ile Glu Asp Gly Thr Leu Ala Ser Lys Thr Lys Gly Thr
     5            3935                    3940                    3945


              Leu Ala His Arg Asp Phe Ser Ala Glu Tyr Glu Glu Asp Gly Lys
                  3950                    3955                    3960
    10

              Phe Glu Gly Leu Gln Glu Trp Glu Gly Lys Ala His Leu Asn Ile
                  3965                    3970                    3975
    15
              Lys Ser Pro Ala Phe Thr Asp Leu His Leu Arg Tyr Gln Lys Asp
                  3980                    3985                    3990

    20        Lys Lys Gly Ile Ser Thr Ser Ala Ala Ser Pro Ala Val Gly Thr
                  3995                    4000                    4005


              Val Gly Met Asp Met Asp Glu Asp Asp Asp Phe Ser Lys Trp Asn
    25            4010                    4015                    4020


              Phe Tyr Tyr Ser Pro Gln Ser Ser Pro Asp Lys Lys Leu Thr Ile
                  4025                    4030                    4035
    30
              Phe Lys Thr Glu Leu Arg Val Arg Glu Ser Asp Glu Glu Thr Gln
                  4040                    4045                    4050

    35
              Ile Lys Val Asn Trp Glu Glu Glu Ala Ala Ser Gly Leu Leu Thr
                  4055                    4060                    4065


    40        Ser Leu Lys Asp Asn Val Pro Lys Ala Thr Gly Val Leu Tyr Asp
                  4070                    4075                    4080


              Tyr Val Asn Lys Tyr His Trp Glu His Thr Gly Leu Thr Leu Arg
                  4085                    4090                    4095
    45
              Glu Val Ser Ser Lys Leu Arg Arg Asn Leu Gln Asn Asn Ala Glu
                  4100                    4105                    4110
    50
              Trp Val Tyr Gln Gly Ala Ile Arg Gln Ile Asp Asp Ile Asp Val
                  4115                    4120                    4125

    55
              Arg Phe Gln Lys Ala Ala Ser Gly Thr Thr Gly Thr Tyr Gln Glu
                  4130                    4135                    4140


    60        Trp Lys Asp Lys Ala Gln Asn Leu Tyr Gln Glu Leu Leu Thr Gln
                  4145                    4150                    4155


              Glu Gly Gln Ala Ser Phe Gln Gly Leu Lys Asp Asn Val Phe Asp
                  4160                    4165                    4170
    65
              Gly Leu Val Arg Val Thr Gln Lys Phe His Met Lys Val Lys His
                  4175                    4180                    4185
    70
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        Leu Ile  Asp Ser Leu Ile Asp  Phe Leu Asn Phe Pro  Arg Phe Gln
            4190              4195               4200

        Phe Pro  Gly Lys Pro Gly Ile  Tyr Thr Arg Glu Glu  Leu Cys Thr
            4205              4210               4215

        Met Phe  Ile Arg Glu Val Gly  Thr Val Leu Ser Gln  Val Tyr Ser
            4220              4225               4230

        Lys Val  His Asn Gly Ser Glu  Ile Leu Phe Ser Tyr  Phe Gln Asp
            4235              4240               4245

        Leu Val  Ile Thr Leu Pro Phe  Glu Leu Arg Lys His  Lys Leu Ile
            4250              4255               4260

        Asp Val  Ile Ser Met Tyr Arg  Glu Leu Leu Lys Asp  Leu Ser Lys
            4265              4270               4275

        Glu Ala  Gln Glu Val Phe Lys  Ala Ile Gln Ser Leu  Lys Thr Thr
            4280              4285               4290

        Glu Val  Leu Arg Asn Leu Gln  Asp Leu Leu Gln Phe  Ile Phe Gln
            4295              4300               4305

        Leu Ile  Glu Asp Asn Ile Lys  Gln Leu Lys Glu Met  Lys Phe Thr
            4310              4315               4320

        Tyr Leu  Ile Asn Tyr Ile Gln  Asp Glu Ile Asn Thr  Ile Phe Asn
            4325              4330               4335

        Asp Tyr  Ile Pro Tyr Val Phe  Lys Leu Leu Lys Glu  Asn Leu Cys
            4340              4345               4350

        Leu Asn  Leu His Lys Phe Asn  Glu Phe Ile Gln Asn  Glu Leu Gln
            4355              4360               4365

        Glu Ala  Ser Gln Glu Leu Gln  Gln Ile His Gln Tyr  Ile Met Ala
            4370              4375               4380

        Leu Arg  Glu Glu Tyr Phe Asp  Pro Ser Ile Val Gly  Trp Thr Val
            4385              4390               4395

        Lys Tyr  Tyr Glu Leu Glu Glu  Lys Ile Val Ser Leu  Ile Lys Asn
            4400              4405               4410

        Leu Leu  Val Ala Leu Lys Asp  Phe His Ser Glu Tyr  Ile Val Ser
            4415              4420               4425

        Ala Ser  Asn Phe Thr Ser Gln  Leu Ser Ser Gln Val  Glu Gln Phe
            4430              4435               4440

        Leu His  Arg Asn Ile Gln Glu  Tyr Leu Ser Ile Leu  Thr Asp Pro
```

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                4445                    4450                    4455

          Asp Gly Lys Gly Lys Glu Lys Ile Ala Glu Leu Ser Ala Thr Ala
  5           4460                4465            4470


          Gln Glu Ile Ile Lys Ser Gln Ala Ile Ala Thr Lys Lys Ile Ile
 10           4475                4480            4485


          Ser Asp Tyr His Gln Gln Phe Arg Tyr Lys Leu Gln Asp Phe Ser
              4490                4495            4500
 15
          Asp Gln Leu Ser Asp Tyr Tyr Glu Lys Phe Ile Ala Glu Ser Lys
              4505                4510            4515


 20       Arg Leu Ile Asp Leu Ser Ile Gln Asn Tyr His Thr Phe Leu Ile
              4520                4525            4530


          Tyr Ile Thr Glu Leu Leu Lys Lys Leu Gln Ser Thr Thr Val Met
 25           4535                4540            4545


          Asn Pro Tyr Met Lys Leu Ala Pro Gly Glu Leu Thr Ile Ile Leu
              4550                4555            4560
 30
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          Met Lys Pro Pro Arg Pro Val Arg Thr Cys Ser Lys Val Leu Val Leu
 45       1               5               10              15


          Leu Ser Leu Leu Ala Ile His Gln Thr Thr Thr Ala Glu Lys Asn Gly
                      20              25              30
 50
          Ile Asp Ile Tyr Ser Leu Thr Val Asp Ser Arg Val Ser Ser Arg Phe
                  35              40              45
 55
          Ala His Thr Val Val Thr Ser Arg Val Val Asn Arg Ala Asn Thr Val
              50              55              60


 60       Gln Glu Ala Thr Phe Gln Met Glu Leu Pro Lys Lys Ala Phe Ile Thr
          65              70              75              80


          Asn Phe Ser Met Asn Ile Asp Gly Met Thr Tyr Pro Gly Ile Ile Lys
 65                       85              90              95


          Glu Lys Ala Glu Ala Gln Ala Gln Tyr Ser Ala Ala Val Ala Lys Gly
                      100             105             110
 70
```

Lys Ser Ala Gly Leu Val Lys Ala Thr Gly Arg Asn Met Glu Gln Phe
     115   120   125

5

Gln Val Ser Val Ser Val Ala Pro Asn Ala Lys Ile Thr Phe Glu Leu
     130   135   140

10

Val Tyr Glu Glu Leu Leu Lys Arg Arg Leu Gly Val Tyr Glu Leu Leu
     145   150   155   160

15

Leu Lys Val Arg Pro Gln Gln Leu Val Lys His Leu Gln Met Asp Ile
          165   170   175

20

His Ile Phe Glu Pro Gln Gly Ile Ser Phe Leu Glu Thr Glu Ser Thr
          180   185   190

Phe Met Thr Asn Gln Leu Val Asp Ala Leu Thr Thr Trp Gln Asn Lys
          195   200   205

25

Thr Lys Ala His Ile Arg Phe Lys Pro Thr Leu Ser Gln Gln Gln Lys
     210   215   220

30

Ser Pro Glu Gln Gln Glu Thr Val Leu Asp Gly Asn Leu Ile Ile Arg
225   230   235   240

Tyr Asp Val Asp Arg Ala Ile Ser Gly Gly Ser Ile Gln Ile Glu Asn
          245   250   255

35

Gly Tyr Phe Val His Tyr Phe Ala Pro Glu Gly Leu Thr Thr Met Pro
          260   265   270

40

Lys Asn Val Val Phe Val Ile Asp Lys Ser Gly Ser Met Ser Gly Arg
          275   280   285

45

Lys Ile Gln Gln Thr Arg Glu Ala Leu Ile Lys Ile Leu Asp Asp Leu
     290   295   300

50

Ser Pro Arg Asp Gln Phe Asn Leu Ile Val Phe Ser Thr Glu Ala Thr
305   310   315   320

55

Gln Trp Arg Pro Ser Leu Val Pro Ala Ser Ala Glu Asn Val Asn Lys
          325   330   335

Ala Arg Ser Phe Ala Ala Gly Ile Gln Ala Leu Gly Gly Thr Asn Ile
          340   345   350

60

Asn Asp Ala Met Leu Met Ala Val Gln Leu Leu Asp Ser Ser Asn Gln
          355   360   365

65

Glu Glu Arg Leu Pro Glu Gly Ser Val Ser Leu Ile Ile Leu Leu Thr
     370   375   380

70

Asp Gly Asp Pro Thr Val Gly Glu Thr Asn Pro Arg Ser Ile Gln Asn

```
              385                   390                    395                    400

  5      Asn Val Arg Glu Ala Val Ser Gly Arg Tyr Ser Leu Phe Cys Leu Gly
                         405                 410                 415

 10      Phe Gly Phe Asp Val Ser Tyr Ala Phe Leu Glu Lys Leu Ala Leu Asp
                     420                 425                 430

 15      Asn Gly Gly Leu Ala Arg Arg Ile His Glu Asp Ser Asp Ser Ala Leu
                     435                 440                 445

         Gln Leu Gln Asp Phe Tyr Gln Glu Val Ala Asn Pro Leu Leu Thr Ala
                 450                 455                 460

 20      Val Thr Phe Glu Tyr Pro Ser Asn Ala Val Glu Glu Val Thr Gln Asn
         465                 470                 475                 480

 25      Asn Phe Arg Leu Leu Phe Lys Gly Ser Glu Met Val Val Ala Gly Lys
                         485                 490                 495

         Leu Gln Asp Arg Gly Pro Asp Val Leu Thr Ala Thr Val Ser Gly Lys
                     500                 505                 510

 30      Leu Pro Thr Gln Asn Ile Thr Phe Gln Thr Glu Ser Ser Val Ala Glu
                     515                 520                 525

 35      Gln Glu Ala Glu Phe Gln Ser Pro Lys Tyr Ile Phe His Asn Phe Met
                 530                 535                 540

 40      Glu Arg Leu Trp Ala Tyr Leu Thr Ile Gln Gln Leu Leu Glu Gln Thr
         545                 550                 555                 560

 45      Val Ser Ala Ser Asp Ala Asp Gln Gln Ala Leu Arg Asn Gln Ala Leu
                         565                 570                 575

         Asn Leu Ser Leu Ala Tyr Ser Phe Val Thr Pro Leu Thr Ser Met Val
                     580                 585                 590

 50      Val Thr Lys Pro Asp Asp Gln Glu Gln Ser Gln Val Ala Glu Lys Pro
                     595                 600                 605

 55      Met Glu Gly Glu Ser Arg Asn Arg Asn Val His Ser Gly Ser Thr Phe
                 610                 615                 620

 60      Phe Lys Tyr Tyr Leu Gln Gly Ala Lys Ile Pro Lys Pro Glu Ala Ser
         625                 630                 635                 640

 65      Phe Ser Pro Arg Arg Gly Trp Asn Arg Gln Ala Gly Ala Ala Gly Ser
                         645                 650                 655

         Arg Met Asn Phe Arg Pro Gly Val Leu Ser Ser Arg Gln Leu Gly Leu
                     660                 665                 670

 70
```

Pro Gly Pro Pro Asp Val Pro Asp His Ala Ala Tyr His Pro Phe Arg
        675   680   685

Arg Leu Ala Ile Leu Pro Ala Ser Ala Pro Pro Ala Thr Ser Asn Pro
    690   695   700

Asp Pro Ala Val Ser Arg Val Met Asn Met Lys Ile Glu Glu Thr Thr
705   710   715   720

Met Thr Thr Gln Thr Pro Ala Pro Ile Gln Ala Pro Ser Ala Ile Leu
            725   730   735

Pro Leu Pro Gly Gln Ser Val Glu Arg Leu Cys Val Asp Pro Arg His
            740   745   750

Arg Gln Gly Pro Val Asn Leu Leu Ser Asp Pro Glu Gln Gly Val Glu
            755   760   765

Val Thr Gly Gln Tyr Glu Arg Glu Lys Ala Gly Phe Ser Trp Ile Glu
    770   775   780

Val Thr Phe Lys Asn Pro Leu Val Trp Val His Ala Ser Pro Glu His
785   790   795   800

Val Val Val Thr Arg Asn Arg Arg Ser Ser Ala Tyr Lys Trp Lys Glu
            805   810   815

Thr Leu Phe Ser Val Met Pro Gly Leu Lys Met Thr Met Asp Lys Thr
            820   825   830

Gly Leu Leu Leu Leu Ser Asp Pro Asp Lys Val Thr Ile Gly Leu Leu
    835   840   845

Phe Trp Asp Gly Arg Gly Glu Gly Leu Arg Leu Leu Leu Arg Asp Thr
    850   855   860

Asp Arg Phe Ser Ser His Val Gly Gly Thr Leu Gly Gln Phe Tyr Gln
865   870   875   880

Glu Val Leu Trp Gly Ser Pro Ala Ala Ser Asp Asp Gly Arg Arg Thr
            885   890   895

Leu Arg Val Gln Gly Asn Asp His Ser Ala Thr Arg Glu Arg Arg Leu
            900   905   910

Asp Tyr Gln Glu Gly Pro Pro Gly Val Glu Ile Ser Cys Trp Ser Val
        915   920   925

Glu Leu
    930

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Ser Leu Gln Lys Pro Arg Leu Leu Phe Ser Pro Ser Val Val His
            20   25   30

Leu Gly Val Pro Leu Ser Val Gly Val Gln Leu Gln Asp Val Pro Arg
        35   40   45

Gly Gln Val Val Lys Gly Ser Val Phe Leu Arg Asn Pro Ser Arg Asn
    50   55   60

Asn Val Pro Cys Ser Pro Lys Val Asp Phe Thr Leu Ser Ser Glu Arg
65   70   75   80

Asp Phe Ala Leu Leu Ser Leu Gln Val Pro Leu Lys Asp Ala Lys Ser
            85   90   95

Cys Gly Leu His Gln Leu Leu Arg Gly Pro Glu Val Gln Leu Val Ala
            100   105   110

His Ser Pro Trp Leu Lys Asp Ser Leu Ser Arg Thr Thr Asn Ile Gln
        115   120   125

Gly Ile Asn Leu Leu Phe Ser Ser Arg Arg Gly His Leu Phe Leu Gln
    130   135   140

Thr Asp Gln Pro Ile Tyr Asn Pro Gly Gln Arg Val Arg Tyr Arg Val
145   150   155   160

Phe Ala Leu Asp Gln Lys Met Arg Pro Ser Thr Asp Thr Ile Thr Val
            165   170   175

Met Val Glu Asn Ser His Gly Leu Arg Val Arg Lys Lys Glu Val Tyr
            180   185   190

Met Pro Ser Ser Ile Phe Gln Asp Asp Phe Val Ile Pro Asp Ile Ser
        195   200   205

Glu Pro Gly Thr Trp Lys Ile Ser Ala Arg Phe Ser Asp Gly Leu Glu
    210   215   220

Ser Asn Ser Ser Thr Gln Phe Glu Val Lys Lys Tyr Val Leu Pro Asn
225   230   235   240

```
        Phe Glu Val Lys Ile Thr Pro Gly Lys Pro Tyr Ile Leu Thr Val Pro
                        245             250             255
5
        Gly His Leu Asp Glu Met Gln Leu Asp Ile Gln Ala Arg Tyr Ile Tyr
                        260             265             270
10
        Gly Lys Pro Val Gln Gly Val Ala Tyr Val Arg Phe Gly Leu Leu Asp
                        275             280             285
15
        Glu Asp Gly Lys Lys Thr Phe Phe Arg Gly Leu Glu Ser Gln Thr Lys
                    290             295             300
        Leu Val Asn Gly Gln Ser His Ile Ser Leu Ser Lys Ala Glu Phe Gln
        305             310             315             320
20
        Asp Ala Leu Glu Lys Leu Asn Met Gly Ile Thr Asp Leu Gln Gly Leu
                        325             330             335
25
        Arg Leu Tyr Val Ala Ala Ala Ile Ile Glu Ser Pro Gly Gly Glu Met
                        340             345             350
30
        Glu Glu Ala Glu Leu Thr Ser Trp Tyr Phe Val Ser Ser Pro Phe Ser
                        355             360             365
35
        Leu Asp Leu Ser Lys Thr Lys Arg His Leu Val Pro Gly Ala Pro Phe
                        370             375             380
        Leu Leu Gln Ala Leu Val Arg Glu Met Ser Gly Ser Pro Ala Ser Gly
        385             390             395             400
40
        Ile Pro Val Lys Val Ser Ala Thr Val Ser Ser Pro Gly Ser Val Pro
                        405             410             415
45
        Glu Val Gln Asp Ile Gln Gln Asn Thr Asp Gly Ser Gly Gln Val Ser
                        420             425             430
50
        Ile Pro Ile Ile Ile Pro Gln Thr Ile Ser Glu Leu Gln Leu Ser Val
                        435             440             445
55
        Ser Ala Gly Ser Pro His Pro Ala Ile Ala Arg Leu Thr Val Ala Ala
            450             455             460
        Pro Pro Ser Gly Gly Pro Gly Phe Leu Ser Ile Glu Arg Pro Asp Ser
        465             470             475             480
60
        Arg Pro Pro Arg Val Gly Asp Thr Leu Asn Leu Asn Leu Arg Ala Val
                        485             490             495
65
        Gly Ser Gly Ala Thr Phe Ser His Tyr Tyr Tyr Met Ile Leu Ser Arg
                        500             505             510
70
        Gly Gln Ile Val Phe Met Asn Arg Glu Pro Lys Arg Thr Leu Thr Ser
```

                515   520   525

        Val Ser Val Phe Val Asp His His Leu Ala Pro Ser Phe Tyr Phe Val
   5   530   535   540

        Ala Phe Tyr Tyr His Gly Asp His Pro Val Ala Asn Ser Leu Arg Val
        545   550   555   560
  10

        Asp Val Gln Ala Gly Ala Cys Glu Gly Lys Leu Glu Leu Ser Val Asp
                        565   570   575

  15
        Gly Ala Lys Gln Tyr Arg Asn Gly Glu Ser Val Lys Leu His Leu Glu
                        580   585   590

  20   Thr Asp Ser Leu Ala Leu Val Ala Leu Gly Ala Leu Asp Thr Ala Leu
                        595   600   605

        Tyr Ala Ala Gly Ser Lys Ser His Lys Pro Leu Asn Met Gly Lys Val
  25   610   615   620

        Phe Glu Ala Met Asn Ser Tyr Asp Leu Gly Cys Gly Pro Gly Gly Gly
        625   630   635   640
  30

        Asp Ser Ala Leu Gln Val Phe Gln Ala Ala Gly Leu Ala Phe Ser Asp
                        645   650   655

  35
        Gly Asp Gln Trp Thr Leu Ser Arg Lys Arg Leu Ser Cys Pro Lys Glu
                        660   665   670

  40   Lys Thr Thr Arg Lys Lys Arg Asn Val Asn Phe Gln Lys Ala Ile Asn
                        675   680   685

        Glu Lys Leu Gly Gln Tyr Ala Ser Pro Thr Ala Lys Arg Cys Cys Gln
  45   690   695   700

        Asp Gly Val Thr Arg Leu Pro Met Met Arg Ser Cys Glu Gln Arg Ala
        705   710   715   720
  50

        Ala Arg Val Gln Gln Pro Asp Cys Arg Glu Pro Phe Leu Ser Cys Cys
                        725   730   735

  55
        Gln Phe Ala Glu Ser Leu Arg Lys Lys Ser Arg Asp Lys Gly Gln Ala
                        740   745   750

  60   Gly Leu Gln Arg Ala Leu Glu Ile Leu Gln Glu Glu Asp Leu Ile Asp
                        755   760   765

        Glu Asp Asp Ile Pro Val Arg Ser Phe Phe Pro Glu Asn Trp Leu Trp
            770   775   780
  65

        Arg Val Glu Thr Val Asp Arg Phe Gln Ile Leu Thr Leu Trp Leu Pro
        785   790   795   800
  70

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Asp Ser Leu Thr Thr Trp Glu Ile His Gly Leu Ser Leu Ser Lys Thr
                805             810                 815

Lys Gly Leu Cys Val Ala Thr Pro Val Gln Leu Arg Val Phe Arg Glu
                820             825                 830

Phe His Leu His Leu Arg Leu Pro Met Ser Val Arg Arg Phe Glu Gln
        835             840                 845

Leu Glu Leu Arg Pro Val Leu Tyr Asn Tyr Leu Asp Lys Asn Leu Thr
        850             855                 860

Val Ser Val His Val Ser Pro Val Glu Gly Leu Cys Leu Ala Gly Gly
865             870             875                 880

Gly Gly Leu Ala Gln Gln Val Leu Val Pro Ala Gly Ser Ala Arg Pro
                885             890                 895

Val Ala Phe Ser Val Val Pro Thr Ala Ala Ala Val Ser Leu Lys
                900             905             910

Val Val Ala Arg Gly Ser Phe Glu Phe Pro Val Gly Asp Ala Val Ser
        915             920                 925

Lys Val Leu Gln Ile Glu Lys Glu Gly Ala Ile His Arg Glu Glu Leu
        930             935                 940

Val Tyr Glu Leu Asn Pro Leu Asp His Arg Gly Arg Thr Leu Glu Ile
945             950             955                 960

Pro Gly Asn Ser Asp Pro Asn Met Ile Pro Asp Gly Asp Phe Asn Ser
                965             970                 975

Tyr Val Arg Val Thr Ala Ser Asp Pro Leu Asp Thr Leu Gly Ser Glu
                980             985                 990

Gly Ala Leu Ser Pro Gly Gly Val  Ala Ser Leu Leu Arg  Leu Pro Arg
            995             1000                 1005

Gly Cys  Gly Glu Gln Thr Met  Ile Tyr Leu Ala Pro  Thr Leu Ala
    1010                 1015                 1020

Ala Ser  Arg Tyr Leu Asp Lys  Thr Glu Gln Trp Ser  Thr Leu Pro
    1025                 1030                 1035

Pro Glu  Thr Lys Asp His Ala  Val Asp Leu Ile Gln  Lys Gly Tyr
    1040                 1045                 1050

Met Arg  Ile Gln Gln Phe Arg  Lys Ala Asp Gly Ser  Tyr Ala Ala
    1055                 1060                 1065

Trp Leu  Ser Arg Asp Ser Ser  Thr Trp Leu Thr Ala  Phe Val Leu
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                 1070   1075   1080

 5   Lys Val Leu Ser Leu Ala Gln Glu Gln Val Gly Gly Ser Pro Glu
              1085   1090   1095

10   Lys Leu Gln Glu Thr Ser Asn Trp Leu Leu Ser Gln Gln Gln Ala
              1100   1105   1110

          Asp Gly Ser Phe Gln Asp Pro Cys Pro Val Leu Asp Arg Ser Met
              1115   1120   1125

15   Gln Gly Gly Leu Val Gly Asn Asp Glu Thr Val Ala Leu Thr Ala
              1130   1135   1140

20   Phe Val Thr Ile Ala Leu His His Gly Leu Ala Val Phe Gln Asp
              1145   1150   1155

25   Glu Gly Ala Glu Pro Leu Lys Gln Arg Val Glu Ala Ser Ile Ser
              1160   1165   1170

          Lys Ala Asn Ser Phe Leu Gly Glu Lys Ala Ser Ala Gly Leu Leu
              1175   1180   1185

30   Gly Ala His Ala Ala Ala Ile Thr Ala Tyr Ala Leu Ser Leu Thr
              1190   1195   1200

35   Lys Ala Pro Val Asp Leu Leu Gly Val Ala His Asn Asn Leu Met
              1205   1210   1215

40   Ala Met Ala Gln Glu Thr Gly Asp Asn Leu Tyr Trp Gly Ser Val
              1220   1225   1230

45   Thr Gly Ser Gln Ser Asn Ala Val Ser Pro Thr Pro Ala Pro Arg
              1235   1240   1245

          Asn Pro Ser Asp Pro Met Pro Gln Ala Pro Ala Leu Trp Ile Glu
              1250   1255   1260

50   Thr Thr Ala Tyr Ala Leu Leu His Leu Leu Leu His Glu Gly Lys
              1265   1270   1275

55   Ala Glu Met Ala Asp Gln Ala Ser Ala Trp Leu Thr Arg Gln Gly
              1280   1285   1290

60   Ser Phe Gln Gly Gly Phe Arg Ser Thr Gln Asp Thr Val Ile Ala
              1295   1300   1305

65   Leu Asp Ala Leu Ser Ala Tyr Trp Ile Ala Ser His Thr Thr Glu
              1310   1315   1320

          Glu Arg Gly Leu Asn Val Thr Leu Ser Ser Thr Gly Arg Asn Gly
              1325   1330   1335
70
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        Phe Lys Ser His Ala Leu Gln Leu Asn Asn Arg Gln Ile Arg Gly
            1340            1345                1350

 5      Leu Glu Glu Glu Leu Gln Phe Ser Leu Gly Ser Lys Ile Asn Val
            1355            1360                1365

10      Lys Val Gly Gly Asn Ser Lys Gly Thr Leu Lys Val Leu Arg Thr
            1370            1375                1380

        Tyr Asn Val Leu Asp Met Lys Asn Thr Thr Cys Gln Asp Leu Gln
15          1385            1390                1395

        Ile Glu Val Thr Val Lys Gly His Val Glu Tyr Thr Met Glu Ala
            1400            1405                1410
20
        Asn Glu Asp Tyr Glu Asp Tyr Glu Tyr Asp Glu Leu Pro Ala Lys
            1415            1420                1425

25      Asp Asp Pro Asp Ala Pro Leu Gln Pro Val Thr Pro Leu Gln Leu
            1430            1435                1440

30      Phe Glu Gly Arg Arg Asn Arg Arg Arg Arg Glu Ala Pro Lys Val
            1445            1450                1455

        Val Glu Glu Gln Glu Ser Arg Val His Tyr Thr Val Cys Ile Trp
35          1460            1465                1470

        Arg Asn Gly Lys Val Gly Leu Ser Gly Met Ala Ile Ala Asp Val
            1475            1480                1485
40
        Thr Leu Leu Ser Gly Phe His Ala Leu Arg Ala Asp Leu Glu Lys
            1490            1495                1500

45      Leu Thr Ser Leu Ser Asp Arg Tyr Val Ser His Phe Glu Thr Glu
            1505            1510                1515

50      Gly Pro His Val Leu Leu Tyr Phe Asp Ser Val Pro Thr Ser Arg
            1520            1525                1530

55      Glu Cys Val Gly Phe Glu Ala Val Gln Glu Val Pro Val Gly Leu
            1535            1540                1545

        Val Gln Pro Ala Ser Ala Thr Leu Tyr Asp Tyr Tyr Asn Pro Glu
            1550            1555                1560
60
        Arg Arg Cys Ser Val Phe Tyr Gly Ala Pro Ser Lys Ser Arg Leu
            1565            1570                1575

65      Leu Ala Thr Leu Cys Ser Ala Glu Val Cys Gln Cys Ala Glu Gly
            1580            1585                1590

70      Lys Cys Pro Arg Gln Arg Arg Ala Leu Glu Arg Gly Leu Gln Asp
```

                    1595   1600   1605

            Glu Asp Gly Tyr Arg Met Lys Phe Ala Cys Tyr Tyr Pro Arg Val
   5   1610   1615   1620

            Glu Tyr Gly Phe Gln Val Lys Val Leu Arg Glu Asp Ser Arg Ala
  10   1625   1630   1635

            Ala Phe Arg Leu Phe Glu Thr Lys Ile Thr Gln Val Leu His Phe
                1640   1645   1650
  15
            Thr Lys Asp Val Lys Ala Ala Ala Asn Gln Met Arg Asn Phe Leu
                1655   1660   1665

  20   Val Arg Ala Ser Cys Arg Leu Arg Leu Glu Pro Gly Lys Glu Tyr
                1670   1675   1680

            Leu Ile Met Gly Leu Asp Gly Ala Thr Tyr Asp Leu Glu Gly His
  25   1685   1690   1695

            Pro Gln Tyr Leu Leu Asp Ser Asn Ser Trp Ile Glu Glu Met Pro
                1700   1705   1710
  30
            Ser Glu Arg Leu Cys Arg Ser Thr Arg Gln Arg Ala Ala Cys Ala
                1715   1720   1725

  35   Gln Leu Asn Asp Phe Leu Gln Glu Tyr Gly Thr Gln Gly Cys Gln
                1730   1735   1740

  40   Val

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                        20   25   30

            Ile Leu Arg Leu Glu Ser Glu Glu Thr Met Val Leu Glu Ala His Asp
  65   35   40   45

            Ala Gln Gly Asp Val Pro Val Thr Val Thr Val His Asp Phe Pro Gly
                50   55   60
  70

Lys Lys Leu Val Leu Ser Ser Glu Lys Thr Val Leu Thr Pro Ala Thr
65   70   75   80

Asn His Met Gly Asn Val Thr Phe Thr Ile Pro Ala Asn Arg Glu Phe
            85   90   95

Lys Ser Glu Lys Gly Arg Asn Lys Phe Val Thr Val Gln Ala Thr Phe
            100   105   110

Gly Thr Gln Val Val Glu Lys Val Val Leu Val Ser Leu Gln Ser Gly
        115   120   125

Tyr Leu Phe Ile Gln Thr Asp Lys Thr Ile Tyr Thr Pro Gly Ser Thr
    130   135   140

Val Leu Tyr Arg Ile Phe Thr Val Asn His Lys Leu Leu Pro Val Gly
145   150   155   160

Arg Thr Val Met Val Asn Ile Glu Asn Pro Glu Gly Ile Pro Val Lys
            165   170   175

Gln Asp Ser Leu Ser Ser Gln Asn Gln Leu Gly Val Leu Pro Leu Ser
            180   185   190

Trp Asp Ile Pro Glu Leu Val Asn Met Gly Gln Trp Lys Ile Arg Ala
        195   200   205

Tyr Tyr Glu Asn Ser Pro Gln Gln Val Phe Ser Thr Glu Phe Glu Val
    210   215   220

Lys Glu Tyr Val Leu Pro Ser Phe Glu Val Ile Val Glu Pro Thr Glu
225   230   235   240

Lys Phe Tyr Tyr Ile Tyr Asn Glu Lys Gly Leu Glu Val Thr Ile Thr
            245   250   255

Ala Arg Phe Leu Tyr Gly Lys Lys Val Glu Gly Thr Ala Phe Val Ile
        260   265   270

Phe Gly Ile Gln Asp Gly Glu Gln Arg Ile Ser Leu Pro Glu Ser Leu
        275   280   285

Lys Arg Ile Pro Ile Glu Asp Gly Ser Gly Glu Val Val Leu Ser Arg
    290   295   300

Lys Val Leu Leu Asp Gly Val Gln Asn Leu Arg Ala Glu Asp Leu Val
305   310   315   320

Gly Lys Ser Leu Tyr Val Ser Ala Thr Val Ile Leu His Ser Gly Ser
            325   330   335

Asp Met Val Gln Ala Glu Arg Ser Gly Ile Pro Ile Val Thr Ser Pro

                    340   345   350

5   Tyr Gln Ile His Phe Thr Lys Thr Pro Lys Tyr Phe Lys Pro Gly Met
                 355   360   365

         Pro Phe Asp Leu Met Val Phe Val Thr Asn Pro Asp Gly Ser Pro Ala
              370   375   380
10

         Tyr Arg Val Pro Val Ala Val Gln Gly Glu Asp Thr Val Gln Ser Leu
         385   390   395   400

15
         Thr Gln Gly Asp Gly Val Ala Lys Leu Ser Ile Asn Thr His Pro Ser
                          405   410   415

20   Gln Lys Pro Leu Ser Ile Thr Val Arg Thr Lys Lys Gln Glu Leu Ser
                     420   425   430

         Glu Ala Glu Gln Ala Thr Arg Thr Met Gln Ala Leu Pro Tyr Ser Thr
                 435   440   445
25

         Val Gly Asn Ser Asn Asn Tyr Leu His Leu Ser Val Leu Arg Thr Glu
              450   455   460
30

         Leu Arg Pro Gly Glu Thr Leu Asn Val Asn Phe Leu Leu Arg Met Asp
         465   470   475   480

35
         Arg Ala His Glu Ala Lys Ile Arg Tyr Tyr Thr Tyr Leu Ile Met Asn
                          485   490   495

40   Lys Gly Arg Leu Leu Lys Ala Gly Arg Gln Val Arg Glu Pro Gly Gln
                     500   505   510

         Asp Leu Val Val Leu Pro Leu Ser Ile Thr Thr Asp Phe Ile Pro Ser
                 515   520   525
45

         Phe Arg Leu Val Ala Tyr Tyr Thr Leu Ile Gly Ala Ser Gly Gln Arg
              530   535   540
50

         Glu Val Val Ala Asp Ser Val Trp Val Asp Val Lys Asp Ser Cys Val
         545   550   555   560

55
         Gly Ser Leu Val Val Lys Ser Gly Gln Ser Glu Asp Arg Gln Pro Val
                          565   570   575

60   Pro Gly Gln Gln Met Thr Leu Lys Ile Glu Gly Asp His Gly Ala Arg
                     580   585   590

         Val Val Leu Val Ala Val Asp Lys Gly Val Phe Val Leu Asn Lys Lys
              595   600   605
65

         Asn Lys Leu Thr Gln Ser Lys Ile Trp Asp Val Val Glu Lys Ala Asp
              610   615   620
70

Ile Gly Cys Thr Pro Gly Ser Gly Lys Asp Tyr Ala Gly Val Phe Ser
625   630   635   640

Asp Ala Gly Leu Thr Phe Thr Ser Ser Ser Gly Gln Gln Thr Ala Gln
                 645   650   655

Arg Ala Glu Leu Gln Cys Pro Gln Pro Ala Ala Arg Arg Arg Arg Ser
                 660   665   670

Val Gln Leu Thr Glu Lys Arg Met Asp Lys Val Gly Lys Tyr Pro Lys
             675   680   685

Glu Leu Arg Lys Cys Cys Glu Asp Gly Met Arg Glu Asn Pro Met Arg
         690   695   700

Phe Ser Cys Gln Arg Arg Thr Arg Phe Ile Ser Leu Gly Glu Ala Cys
705   710   715   720

Lys Lys Val Phe Leu Asp Cys Cys Asn Tyr Ile Thr Glu Leu Arg Arg
                 725   730   735

Gln His Ala Arg Ala Ser His Leu Gly Leu Ala Arg Ser Asn Leu Asp
             740   745   750

Glu Asp Ile Ile Ala Glu Glu Asn Ile Val Ser Arg Ser Glu Phe Pro
         755   760   765

Glu Ser Trp Leu Trp Asn Val Glu Asp Leu Lys Glu Pro Pro Lys Asn
     770   775   780

Gly Ile Ser Thr Lys Leu Met Asn Ile Phe Leu Lys Asp Ser Ile Thr
785   790   795   800

Thr Trp Glu Ile Leu Ala Val Ser Met Ser Asp Lys Lys Gly Ile Cys
                 805   810   815

Val Ala Asp Pro Phe Glu Val Thr Val Met Gln Asp Phe Phe Ile Asp
             820   825   830

Leu Arg Leu Pro Tyr Ser Val Val Arg Asn Glu Gln Val Glu Ile Arg
         835   840   845

Ala Val Leu Tyr Asn Tyr Arg Gln Asn Gln Glu Leu Lys Val Arg Val
     850   855   860

Glu Leu Leu His Asn Pro Ala Phe Cys Ser Leu Ala Thr Thr Lys Arg
865   870   875   880

Arg His Gln Gln Thr Val Thr Ile Pro Pro Lys Ser Ser Leu Ser Val
             885   890   895

Pro Tyr Val Ile Val Pro Leu Lys Thr Gly Leu Gln Glu Val Glu Val

                        900   905   910

        Lys Ala Ala Val Tyr His His Phe Ile Ser Asp Gly Val Arg Lys Ser
   5   915   920   925.

        Leu Lys Val Val Pro Glu Gly Ile Arg Met Asn Lys Thr Val Ala Val
  10   930   935   940

        Arg Thr Leu Asp Pro Glu Arg Leu Gly Arg Glu Gly Val Gln Lys Glu
        945   950   955   960
  15
        Asp Ile Pro Pro Ala Asp Leu Ser Asp Gln Val Pro Asp Thr Glu Ser
                          965   970   975

  20   Glu Thr Arg Ile Leu Leu Gln Gly Thr Pro Val Ala Gln Met Thr Glu
                      980   985   990

        Asp Ala Val Asp Ala Glu Arg Leu Lys His Leu Ile Val Thr Pro Ser
  25   995   1000   1005

        Gly Cys Gly Glu Gln Asn Met Ile Gly Met Thr Pro Thr Val Ile
            1010   1015   1020
  30
        Ala Val His Tyr Leu Asp Glu Thr Glu Gln Trp Glu Lys Phe Gly
            1025   1030   1035
  35
        Leu Glu Lys Arg Gln Gly Ala Leu Glu Leu Ile Lys Lys Gly Tyr
            1040   1045   1050

  40   Thr Gln Gln Leu Ala Phe Arg Gln Pro Ser Ser Ala Phe Ala Ala
            1055   1060   1065

        Phe Val Lys Arg Ala Pro Ser Thr Trp Leu Thr Ala Tyr Val Val
  45   1070   1075   1080

        Lys Val Phe Ser Leu Ala Val Asn Leu Ile Ala Ile Asp Ser Gln
            1085   1090   1095
  50
        Val Leu Cys Gly Ala Val Lys Trp Leu Ile Leu Glu Lys Gln Lys
            1100   1105   1110
  55
        Pro Asp Gly Val Phe Gln Glu Asp Ala Pro Val Ile His Gln Glu
            1115   1120   1125

  60   Met Ile Gly Gly Leu Arg Asn Asn Asn Glu Lys Asp Met Ala Leu
            1130   1135   1140

        Thr Ala Phe Val Leu Ile Ser Leu Gln Glu Ala Lys Asp Ile Cys
  65   1145   1150   1155

        Glu Glu Gln Val Asn Ser Leu Pro Gly Ser Ile Thr Lys Ala Gly
            1160   1165   1170
  70

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        Asp Phe Leu Glu Ala Asn Tyr Met Asn Leu Gln Arg Ser Tyr Thr
            1175                1180                1185

  5     Val Ala Ile Ala Gly Tyr Ala Leu Ala Gln Met Gly Arg Leu Lys
            1190                1195                1200

 10     Gly Pro Leu Leu Asn Lys Phe Leu Thr Thr Ala Lys Asp Lys Asn
            1205                1210                1215

        Arg Trp Glu Asp Pro Gly Lys Gln Leu Tyr Asn Val Glu Ala Thr
            1220                1225                1230
 15

        Ser Tyr Ala Leu Leu Ala Leu Leu Gln Leu Lys Asp Phe Asp Phe
            1235                1240                1245
 20

        Val Pro Pro Val Val Arg Trp Leu Asn Glu Gln Arg Tyr Tyr Gly
            1250                1255                1260

 25
        Gly Gly Tyr Gly Ser Thr Gln Ala Thr Phe Met Val Phe Gln Ala
            1265                1270                1275

 30     Leu Ala Gln Tyr Gln Lys Asp Ala Pro Asp His Gln Glu Leu Asn
            1280                1285                1290

        Leu Asp Val Ser Leu Gln Leu Pro Ser Arg Ser Ser Lys Ile Thr
            1295                1300                1305
 35

        His Arg Ile His Trp Glu Ser Ala Ser Leu Leu Arg Ser Glu Glu
            1310                1315                1320
 40

        Thr Lys Glu Asn Glu Gly Phe Thr Val Thr Ala Glu Gly Lys Gly
            1325                1330                1335

 45
        Gln Gly Thr Leu Ser Val Val Thr Met Tyr His Ala Lys Ala Lys
            1340                1345                1350

 50     Asp Gln Leu Thr Cys Asn Lys Phe Asp Leu Lys Val Thr Ile Lys
            1355                1360                1365

        Pro Ala Pro Glu Thr Glu Lys Arg Pro Gln Asp Ala Lys Asn Thr
            1370                1375                1380
 55

        Met Ile Leu Glu Ile Cys Thr Arg Tyr Arg Gly Asp Gln Asp Ala
            1385                1390                1395
 60

        Thr Met Ser Ile Leu Asp Ile Ser Met Met Thr Gly Phe Ala Pro
            1400                1405                1410

 65
        Asp Thr Asp Asp Leu Lys Gln Leu Ala Asn Gly Val Asp Arg Tyr
            1415                1420                1425

 70     Ile Ser Lys Tyr Glu Leu Asp Lys Ala Phe Ser Asp Arg Asn Thr
```

               1430   1435   1440

5   Leu Ile Ile Tyr Leu Asp Lys Val Ser His Ser Glu Asp Asp Cys
             1445   1450   1455

         Leu Ala Phe Lys Val His Gln Tyr Phe Asn Val Glu Leu Ile Gln
10   1460   1465   1470

         Pro Gly Ala Val Lys Val Tyr Ala Tyr Tyr Asn Leu Glu Glu Ser
             1475   1480   1485

15   Cys Thr Arg Phe Tyr His Pro Glu Lys Glu Asp Gly Lys Leu Asn
             1490   1495   1500

20   Lys Leu Cys Arg Asp Glu Leu Cys Arg Cys Ala Glu Glu Asn Cys
             1505   1510   1515

         Phe Ile Gln Lys Ser Asp Asp Lys Val Thr Leu Glu Glu Arg Leu
25   1520   1525   1530

         Asp Lys Ala Cys Glu Pro Gly Val Asp Tyr Val Tyr Lys Thr Arg
             1535   1540   1545
30
         Leu Val Lys Val Gln Leu Ser Asn Asp Phe Asp Glu Tyr Ile Met
             1550   1555   1560
35
         Ala Ile Glu Gln Thr Ile Lys Ser Gly Ser Asp Glu Val Gln Val
             1565   1570   1575

40   Gly Gln Gln Arg Thr Phe Ile Ser Pro Ile Lys Cys Arg Glu Ala
             1580   1585   1590

45   Leu Lys Leu Glu Glu Lys Lys His Tyr Leu Met Trp Gly Leu Ser
             1595   1600   1605

         Ser Asp Phe Trp Gly Glu Lys Pro Asn Leu Ser Tyr Ile Ile Gly
50   1610   1615   1620

         Lys Asp Thr Trp Val Glu His Trp Pro Glu Glu Asp Glu Cys Gln
             1625   1630   1635
55
         Asp Glu Glu Asn Gln Lys Gln Cys Gln Asp Leu Gly Ala Phe Thr
             1640   1645   1650

60   Glu Ser Met Val Val Phe Gly Cys Pro Asn
             1655   1660

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<309>   2003-02-28
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Met Ser Gly Leu Arg Val Tyr Ser Thr Ser Val Thr Gly Ser Arg Glu
1   5   10   15

Ile Lys Ser Gln Gln Ser Glu Val Thr Arg Ile Leu Asp Gly Lys Arg
            20   25   30

Ile Gln Tyr Gln Leu Val Asp Ile Ser Gln Asp Asn Ala Leu Arg Asp
            35   40   45

Glu Met Arg Ala Leu Ala Gly Asn Pro Lys Ala Thr Pro Pro Gln Ile
    50   55   60

Val Asn Gly Asp Gln Tyr Cys Gly Asp Tyr Glu Leu Phe Val Glu Ala
65   70   75   80

Val Glu Gln Asn Thr Leu Gln Glu Phe Leu Lys Leu Ala
                85   90

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Met Ala Pro Leu Ala Leu His Leu Leu Val Leu Val Pro Ile Leu Leu
1   5   10   15

Ser Leu Val Ala Ser Gln Asp Trp Lys Ala Glu Arg Ser Gln Asp Pro
            20   25   30

Phe Glu Lys Cys Met Gln Asp Pro Asp Tyr Glu Gln Leu Leu Lys Val
            35   40   45

Val Thr Trp Gly Leu Asn Arg Thr Leu Lys Pro Gln Arg Val Ile Val
    50   55   60

Val Gly Ala Gly Val Ala Gly Leu Val Ala Ala Lys Val Leu Ser Asp
65   70   75   80

Ala Gly His Lys Val Thr Ile Leu Glu Ala Asp Asn Arg Ile Gly Gly
                85   90   95

Arg Ile Phe Thr Tyr Arg Asp Gln Asn Thr Gly Trp Ile Gly Glu Leu
            100   105   110

Gly Ala Met Arg Met Pro Ser Ser His Arg Ile Leu His Lys Leu Cys

115   120   125

Gln Gly Leu Gly Leu Asn Leu Thr Lys Phe Thr Gln Tyr Asp Lys Asn
    130   135   140

Thr Trp Thr Glu Val His Glu Val Lys Leu Arg Asn Tyr Val Val Glu
145   150   155   160

Lys Val Pro Glu Lys Leu Gly Tyr Ala Leu Arg Pro Gln Glu Lys Gly
                165   170   175

His Ser Pro Glu Asp Ile Tyr Gln Met Ala Leu Asn Gln Ala Leu Lys
            180   185   190

Asp Leu Lys Ala Leu Gly Cys Arg Lys Ala Met Lys Lys Phe Glu Arg
        195   200   205

His Thr Leu Leu Glu Tyr Leu Leu Gly Glu Gly Asn Leu Ser Arg Pro
    210   215   220

Ala Val Gln Leu Leu Gly Asp Val Met Ser Glu Asp Gly Phe Phe Tyr
225   230   235   240

Leu Ser Phe Ala Glu Ala Leu Arg Ala His Ser Cys Leu Ser Asp Arg
            245   250   255

Leu Gln Tyr Ser Arg Ile Val Gly Gly Trp Asp Leu Leu Pro Arg Ala
            260   265   270

Leu Leu Ser Ser Leu Ser Gly Leu Val Leu Leu Asn Ala Pro Val Val
        275   280   285

Ala Met Thr Gln Gly Pro His Asp Val His Val Gln Ile Glu Thr Ser
    290   295   300

Pro Pro Ala Arg Asn Leu Lys Val Leu Lys Ala Asp Val Val Leu Leu
305   310   315   320

Thr Ala Ser Gly Pro Ala Val Lys Arg Ile Thr Phe Ser Pro Pro Leu
            325   330   335

Pro Arg His Met Gln Glu Ala Leu Arg Arg Leu His Tyr Val Pro Ala
        340   345   350

Thr Lys Val Phe Leu Ser Phe Arg Arg Pro Phe Trp Arg Glu Glu His
        355   360   365

Ile Glu Gly Gly His Ser Asn Thr Asp Arg Pro Ser Arg Met Ile Phe
    370   375   380

Tyr Pro Pro Pro Arg Glu Gly Ala Leu Leu Leu Ala Ser Tyr Thr Trp
385   390   395   400

```
Ser Asp Ala Ala Ala Ala Phe Ala Gly Leu Ser Arg Glu Glu Ala Leu
            405                 410                 415

Arg Leu Ala Leu Asp Asp Val Ala Ala Leu His Gly Pro Val Val Arg
            420             425                 430

Gln Leu Trp Asp Gly Thr Gly Val Val Lys Arg Trp Ala Glu Asp Gln
            435             440                 445

His Ser Gln Gly Gly Phe Val Val Gln Pro Pro Ala Leu Trp Gln Thr
        450             455             460

Glu Lys Asp Asp Trp Thr Val Pro Tyr Gly Arg Ile Tyr Phe Ala Gly
465             470             475                 480

Glu His Thr Ala Tyr Pro His Gly Trp Val Glu Thr Ala Val Lys Ser
                485             490                 495

Ala Leu Arg Ala Ala Ile Lys Ile Asn Ser Arg Lys Gly Pro Ala Ser
            500             505                 510

Asp Thr Ala Ser Pro Glu Gly His Ala Ser Asp Met Glu Gly Gln Gly
            515             520             525

His Val His Gly Val Ala Ser Ser Pro Ser His Asp Leu Ala Lys Glu
    530             535             540

Glu Gly Ser His Pro Pro Val Gln Gly Gln Leu Ser Leu Gln Asn Thr
545             550             555                 560

Thr His Thr Arg Thr Ser His
                565
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<210>  47
<211>  462
<212>  PRT
<213>  Homo sapiens

<300>
<308>  Swiss-Prot/P02790
<309>  1986-07-21
<313>  (1)..(462)

<400>  47
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Met Ala Arg Val Leu Gly Ala Pro Val Ala Leu Gly Leu Trp Ser Leu
1               5               10                  15

Cys Trp Ser Leu Ala Ile Ala Thr Pro Leu Pro Pro Thr Ser Ala His
            20              25                  30

Gly Asn Val Ala Glu Gly Glu Thr Lys Pro Asp Pro Asp Val Thr Glu
            35              40                  45

Arg Cys Ser Asp Gly Trp Ser Phe Asp Ala Thr Thr Leu Asp Asp Asn
```

```
                    50                      55                        60

          Gly Thr Met Leu Phe Phe Lys Gly Glu Phe Val Trp Lys Ser His Lys
  5       65              70              75                  80

          Trp Asp Arg Glu Leu Ile Ser Glu Arg Trp Lys Asn Phe Pro Ser Pro
 10                       85              90                  95

          Val Asp Ala Ala Phe Arg Gln Gly His Asn Ser Val Phe Leu Ile Lys
                    100             105                 110
 15
          Gly Asp Lys Val Trp Val Tyr Pro Pro Glu Lys Lys Glu Lys Gly Tyr
                    115             120                 125

 20       Pro Lys Leu Leu Gln Asp Glu Phe Pro Gly Ile Pro Ser Pro Leu Asp
                    130             135             140

          Ala Ala Val Glu Cys His Arg Gly Glu Cys Gln Ala Glu Gly Val Leu
 25       145             150                 155                 160

          Phe Phe Gln Gly Asp Arg Glu Trp Phe Trp Asp Leu Ala Thr Gly Thr
                        165             170                 175
 30
          Met Lys Glu Arg Ser Trp Pro Ala Val Gly Asn Cys Ser Ser Ala Leu
                    180             185                 190

 35
          Arg Trp Leu Gly Arg Tyr Tyr Cys Phe Gln Gly Asn Gln Phe Leu Arg
                    195             200                 205

 40       Phe Asp Pro Val Arg Gly Glu Val Pro Pro Arg Tyr Pro Arg Asp Val
                    210             215                 220

          Arg Asp Tyr Phe Met Pro Cys Pro Gly Arg Gly His Gly His Arg Asn
 45       225             230                 235                 240

          Gly Thr Gly His Gly Asn Ser Thr His His Gly Pro Glu Tyr Met Arg
                        245             250                 255
 50
          Cys Ser Pro His Leu Val Leu Ser Ala Leu Thr Ser Asp Asn His Gly
                    260             265                 270

 55
          Ala Thr Tyr Ala Phe Ser Gly Thr His Tyr Trp Arg Leu Asp Thr Ser
                    275             280                 285

 60       Arg Asp Gly Trp His Ser Trp Pro Ile Ala His Gln Trp Pro Gln Gly
                    290             295                 300

          Pro Ser Ala Val Asp Ala Ala Phe Ser Trp Glu Glu Lys Leu Tyr Leu
 65       305             310                 315                 320

          Val Gln Gly Thr Gln Val Tyr Val Phe Leu Thr Lys Gly Gly Tyr Thr
                    325             330                 335
 70
```

```
Leu Val Ser Gly Tyr Pro Lys Arg Leu Glu Lys Glu Val Gly Thr Pro
            340               345               350

His Gly Ile Ile Leu Asp Ser Val Asp Ala Ala Phe Ile Cys Pro Gly
            355               360               365

Ser Ser Arg Leu His Ile Met Ala Gly Arg Arg Leu Trp Trp Leu Asp
    370               375               380

Leu Lys Ser Gly Ala Gln Ala Thr Trp Thr Glu Leu Pro Trp Pro His
385               390               395               400

Glu Lys Val Asp Gly Ala Leu Cys Met Glu Lys Ser Leu Gly Pro Asn
                405               410               415

Ser Cys Ser Ala Asn Gly Pro Gly Leu Tyr Leu Ile His Gly Pro Asn
            420               425               430

Leu Tyr Cys Tyr Ser Asp Val Glu Lys Leu Asn Ala Ala Lys Ala Leu
            435               440               445

Pro Gln Pro Gln Asn Val Thr Ser Leu Leu Gly Cys Thr His
    450               455               460
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<210> 48
<211> 369
<212> PRT
<213> Homo sapiens

<300>
<308> Swiss-Prot/P50502
<309> 1996-10-02
<313> (1)..(369)

<400> 48

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Met Asp Pro Arg Lys Val Asn Glu Leu Arg Ala Phe Val Lys Met Cys
1               5               10               15

Lys Gln Asp Pro Ser Val Leu His Thr Glu Glu Met Arg Phe Leu Arg
            20               25               30

Glu Trp Val Glu Ser Met Gly Gly Lys Val Pro Pro Ala Thr Gln Lys
            35               40               45

Ala Lys Ser Glu Glu Asn Thr Lys Glu Glu Lys Pro Asp Ser Lys Lys
    50               55               60

Val Glu Glu Asp Leu Lys Ala Asp Glu Pro Ser Ser Glu Glu Ser Asp
65               70               75               80

Leu Glu Ile Asp Lys Glu Gly Val Ile Glu Pro Asp Thr Asp Ala Pro
            85               90               95

Gln Glu Met Gly Asp Glu Asn Ala Glu Ile Thr Glu Glu Met Met Asp
```

```
                  100                      105                      110

         Gln Ala Asn Asp Lys Lys Val Ala Ala Ile Glu Ala Leu Asn Asp Gly
  5              115             120                 125

         Glu Leu Gln Lys Ala Ile Asp Leu Phe Thr Asp Ala Ile Lys Leu Asn
                 130             135             140
 10

         Pro Arg Leu Ala Ile Leu Tyr Ala Lys Arg Ala Ser Val Phe Val Lys
         145             150             155                 160

 15
         Leu Gln Lys Pro Asn Ala Ala Ile Arg Asp Cys Asp Arg Ala Ile Glu
                     165             170                 175

 20      Ile Asn Pro Asp Ser Ala Gln Pro Tyr Lys Trp Arg Gly Lys Ala His
                     180             185                 190

         Arg Leu Leu Gly His Trp Glu Glu Ala Ala His Asp Leu Ala Leu Ala
 25              195             200             205

         Cys Lys Leu Asp Tyr Asp Glu Asp Ala Ser Ala Met Leu Lys Glu Val
             210             215             220
 30

         Gln Pro Arg Ala Gln Lys Ile Ala Glu His Arg Arg Lys Tyr Glu Arg
         225             230             235                 240

 35
         Lys Arg Glu Glu Arg Glu Ile Lys Glu Arg Ile Glu Arg Val Lys Lys
                     245             250             255

 40      Ala Arg Glu Glu His Glu Arg Ala Gln Arg Glu Glu Glu Ala Arg Arg
                 260             265             270

         Gln Ser Gly Ala Gln Tyr Gly Ser Phe Pro Gly Gly Phe Pro Gly Gly
 45              275             280             285

         Met Pro Gly Asn Phe Pro Gly Gly Met Pro Gly Met Gly Gly Gly Met
                 290             295             300
 50

         Pro Gly Met Ala Gly Met Pro Gly Leu Asn Glu Ile Leu Ser Asp Pro
         305             310             315                 320

 55
         Glu Val Leu Ala Ala Met Gln Asp Pro Glu Val Met Val Ala Phe Gln
                     325             330                 335

 60      Asp Val Ala Gln Asn Pro Ala Asn Met Ser Lys Tyr Gln Ser Asn Pro
                     340             345                 350

         Lys Val Met Asn Leu Ile Ser Lys Leu Ser Ala Lys Phe Gly Gly Gln
 65              355             360             365

         Ala
 70
```

```
<210>  49
<211>  9
<212>  PRT
<213>  Homo sapiens

<400>  49

Met Gln Leu Met His Ala Asn Ala Gln
1                5


<210>  50
<211>  9
<212>  PRT
<213>  Homo sapiens

<400>  50

Leu Thr Leu Asp Ser Asn Thr Lys Tyr
1                5


<210>  51
<211>  9
<212>  PRT
<213>  Homo sapiens

<400>  51

Phe Val Ile Asp Lys Ser Gly Ser Met
1                5


<210>  52
<211>  9
<212>  PRT
<213>  Homo sapiens

<400>  52

Tyr Leu Leu Asp Ser Asn Ser Trp Ile
1                5


<210>  53
<211>  9
<212>  PRT
<213>  Homo sapiens

<400>  53

Tyr Glu Leu Asp Lys Ala Phe Ser Asp
1                5


<210>  54
<211>  9
<212>  PRT
<213>  Homo sapiens

<400>  54

Ile Lys Ser Gln Gln Ser Glu Val Thr
1                5


<210>  55
<211>  9
<212>  PRT
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<213>   Homo sapiens

<400>   55

Val Gln Ile Glu Thr Ser Pro Pro Ala
1   5

<210>   56
<211>   9
<212>   PRT
<213>   Homo sapiens

<400>   56

Ile Ile Leu Asp Ser Val Asp Ala Ala
1   5

<210>   57
<211>   9
<212>   PRT
<213>   Homo sapiens

<400>   57

Ile Glu Pro Asp Thr Asp Ala Pro Gln
1   5

<210>   58
<211>   17
<212>   PRT
<213>   Homo sapiens

<400>   58

Asn Ile Gln Pro Ile Phe Ala Val Thr Ser Arg Met Val Lys Thr Tyr
1   5   10   15

Glu

<210>   59
<211>   19
<212>   PRT
<213>   Homo sapiens

<400>   59

Glu Asn Asn Ile Gln Pro Ile Phe Ala Val Thr Ser Arg Met Val Lys
1   5   10   15

Thr Tyr Glu

<210>   60
<211>   17
<212>   PRT
<213>   Homo sapiens

<400>   60

Asn Lys Val Phe Gly Glu Asp Ser Val Gly Val Ile Phe Lys Asn Gly
1   5   10   15

Asp

<210> 61
<211> 16
<212> PRT
<213> Homo sapiens

<400> 61

Tyr Pro Glu Gln Leu Lys Met Thr Val Val Lys Leu Ile Ser His Arg
1   5   10   15

<210> 62
<211> 16
<212> PRT
<213> Homo sapiens

<400> 62

Lys Asn Thr Leu Tyr Leu Gln Met Asn Ser Leu Arg Ala Glu Asp Thr
1   5   10   15 .

<210> 63
<211> 16
<212> PRT
<213> Homo sapiens

<400> 63

Asn Gly Gly His Tyr Thr Tyr Ser Glu Asn Arg Val Glu Lys Asp Gly
1   5   10   15

<210> 64
<211> 15
<212> PRT
<213> Homo sapiens

<400> 64

Gly Pro Asn Asn Tyr Tyr Ser Phe Ala Ser Gln Gln Gln Lys Pro
1   5   10   15

<210> 65
<211> 16
<212> PRT
<213> Homo sapiens

<400> 65

Gly Pro Asn Asn Tyr Tyr Ser Phe Ala Ser Gln Gln Gln Lys Pro Glu
1   5   10   15

<210> 66
<211> 17
<212> PRT
<213> Homo sapiens

<400> 66

Gly Pro Asn Asn Tyr Tyr Ser Phe Ala Ser Gln Gln Gln Lys Pro Glu
1   5   10   15

Asp

<210>   67
<211>   18
<212>   PRT
<213>   Homo sapiens

<400>   67

Gly Pro Asn Asn Tyr Tyr Ser Phe Ala Ser Gln Gln Gln Lys Pro Glu
1   5   10   15

Asp Thr

<210>   68
<211>   16
<212>   PRT
<213>   Homo sapiens

<400>   68

Glu Lys Leu Trp Phe Val Pro Ala Lys Val Glu Asp Ser Gly His Tyr
1   5   10   15

<210>   69
<211>   14
<212>   PRT
<213>   Homo sapiens

<400>   69

Ser Leu Arg Glu Leu His Leu Asp His Asn Gln Ile Ser Arg
1   5   10

<210>   70
<211>   13
<212>   PRT
<213>   Homo sapiens

<400>   70

Leu Arg Glu Leu His Leu Asp His Asn Gln Ile Ser Arg
1   5   10

<210>   71
<211>   15
<212>   PRT
<213>   Homo sapiens

<400>   71

Glu Thr Met Lys Met Arg Tyr Glu His Ile Asp His Thr Phe Glu
1   5   10   15

<210>   72
<211>   17
<212>   PRT
<213>   Homo sapiens

<400>   72

```
       Glu Thr Met Lys Met Arg Tyr Glu His Ile Asp His Thr Phe Glu Ile
       1               5               10              15

       Gln


       <210>   73
       <211>   16
       <212>   PRT
       <213>   Homo sapiens

       <400>   73

       His Met Phe Leu Gln Asp Glu Ile Ile Asp Lys Ser Tyr Thr Pro Ser
       1               5               10              15


       <210>   74
       <211>   17
       <212>   PRT
       <213>   Homo sapiens

       <400>   74

       Val Asp Arg Tyr Ile Ser Lys Tyr Glu Leu Asp Lys Ala Phe Ser Asp
       1               5               10              15

       Arg


       <210>   75
       <211>   14
       <212>   PRT
       <213>   Homo sapiens

       <400>   75

       Arg Tyr Ile Ser Lys Tyr Glu Leu Asp Lys Ala Phe Ser Asp
       1               5               10


       <210>   76
       <211>   19
       <212>   PRT
       <213>   Homo sapiens

       <400>   76

       Leu Pro Val Gly Arg Thr Val Met Val Asn Ile Glu Asn Pro Glu Gly
       1               5               10              15


       Ile Pro Val


       <210>   77
       <211>   20
       <212>   PRT
       <213>   Homo sapiens

       <400>   77

       Leu Pro Val Gly Arg Thr Val Met Val Asn Ile Glu Asn Pro Glu Gly
       1               5               10              15
```

```
Ile Pro Val Lys
             20
```

```
<210>  78
<211>  18
<212>  PRT
<213>  Homo sapiens

<400>  78

Gly Thr Pro His Gly Ile Ile Leu Asp Ser Val Asp Ala Ala Phe Ile
1               5               10                  15

Cys Pro
```

```
<210>  79
<211>  18
<212>  PRT
<213>  Homo sapiens

<400>  79

Met Ala Thr Pro Leu Leu Met Gln Ala Leu Pro Met Gly Ala Leu Pro
1               5               10                  15

Gln Gly
```

```
<210>  80
<211>  17
<212>  PRT
<213>  Homo sapiens

<400>  80

Met Ala Thr Pro Leu Leu Met Gln Ala Leu Pro Met Gly Ala Leu Pro
1               5               10                  15

Gln
```

```
<210>  81
<211>  16
<212>  PRT
<213>  Homo sapiens

<400>  81

Met Ala Thr Pro Leu Leu Met Gln Ala Leu Pro Met Gly Ala Leu Pro
1               5               10                  15
```

```
<210>  82
<211>  21
<212>  PRT
<213>  Homo sapiens

<400>  82

Met Ala Thr Pro Leu Leu Met Gln Ala Leu Pro Met Gly Ala Leu Pro
```

1   5   10   15

Gln Gly Pro Met Gln
                   20

<210>   83
<211>   15
<212>   PRT
<213>   Homo sapiens

<400>   83

Ala Thr Pro Leu Leu Met Gln Ala Leu Pro Met Gly Ala Leu Pro
1   5   10   15

<210>   84
<211>   23
<212>   PRT
<213>   Homo sapiens

<400>   84

His Pro Pro Val Gln Trp Ala Phe Gln Glu Thr Ser Val Glu Ser Ala
1   5   10   15

Val Asp Thr Pro Phe Pro Ala
                   20

<210>   85
<211>   24
<212>   PRT
<213>   Homo sapiens

<400>   85

His Pro Pro Val Gln Trp Ala Phe Gln Glu Thr Ser Val Glu Ser Ala
1   5   10   15

Val Asp Thr Pro Phe Pro Ala Gly
                   20

<210>   86
<211>   22
<212>   PRT
<213>   Homo sapiens

<400>   86

His Pro Pro Val Gln Trp Ala Phe Gln Glu Thr Ser Val Glu Ser Ala
1   5   10   15

Val Asp Thr Pro Phe Pro
                   20

<210>   87
<211>   17
<212>   PRT
<213>   Homo sapiens

<400>   87

```
          Lys Ile Tyr Leu Tyr Thr Leu Asn Asp Asn Ala Arg Ser Ser Pro Val
          1               5               10                  15
```

5
```
          Val
```

10
```
          <210>   88
          <211>   16
          <212>   PRT
          <213>   Homo sapiens
```

```
          <400>   88
```
15
```
          Lys Ile Tyr Leu Tyr Thr Leu Asn Asp Asn Ala Arg Ser Ser Pro Val
          1               5               10                  15
```

20
```
          <210>   89
          <211>   17
          <212>   PRT
          <213>   Homo sapiens
```

25
```
          <400>   89
```

```
          Ile Tyr Leu Tyr Thr Leu Asn Asp Asn Ala Arg Ser Ser Pro Val Val
          1               5               10                  15
```

30
```
          Ile
```

35
```
          <210>   90
          <211>   15
          <212>   PRT
          <213>   Homo sapiens
```

40
```
          <400>   90
```

```
          Ile Tyr Leu Tyr Thr Leu Asn Asp Asn Ala Arg Ser Ser Pro Val
          1               5               10                  15
```

45
```
          <210>   91
          <211>   16
          <212>   PRT
          <213>   Homo sapiens
```
50
```
          <400>   91
```

```
          Ile Tyr Leu Tyr Thr Leu Asn Asp Asn Ala Arg Ser Ser Pro Val Val
          1               5               10                  15
```
55
```
          <210>   92
          <211>   15
          <212>   PRT
          <213>   Homo sapiens
```
60
```
          <400>   92
```

```
          Tyr Asn Ser Tyr Ser Val Ser Asn Ser Glu Lys Asp Ile Met Ala
          1               5               10                  15
```
65
```
          <210>   93
          <211>   15
          <212>   PRT
```
70

```
<213>  Homo sapiens

<400>  93

Ala Gly Ser Leu Thr Leu Ser Lys Thr Glu Leu Gly Lys Lys Ala
1                5                   10                  15


<210>  94
<211>  16
<212>  PRT
<213>  Homo sapiens

<400>  94

Ala Gly Ser Leu Thr Leu Ser Lys Thr Glu Leu Gly Lys Lys Ala Asp
1                5                   10                  15


<210>  95
<211>  14
<212>  PRT
<213>  Homo sapiens

<400>  95

Val Pro Lys Asp Tyr Thr Gly Glu Asp Val Thr Pro Gln Asn
1                5                   10


<210>  96
<211>  13
<212>  PRT
<213>  Homo sapiens

<400>  96

Asp Ser Lys Phe His Gln Ala Ile Asn Asp Ala His Gln
1                5                   10


<210>  97
<211>  15
<212>  PRT
<213>  Homo sapiens

<400>  97

Met Pro Leu Glu Phe Lys Thr Leu Asn Val Leu His Asn Arg Gly
1                5                   10                  15


<210>  98
<211>  15
<212>  PRT
<213>  Homo sapiens

<400>  98

Ala Thr Arg Ser Ile Gln Val Asp Gly Lys Thr Ile Lys Ala Gln
1                5                   10                  15


<210>  99
<211>  18
<212>  PRT
<213>  Homo sapiens

<400>  99
```

```
        Ala Thr Arg Ser Ile Gln Val Asp Gly Lys Thr Ile Lys Ala Gln Ile
        1               5               10              15
```

Trp Asp


```
<210>   100
<211>   14
<212>   PRT
<213>   Homo sapiens

<400>   100

        Thr Arg Ser Ile Gln Val Asp Gly Lys Thr Ile Lys Ala Gln
        1               5               10
```


```
<210>   101
<211>   17
<212>   PRT
<213>   Homo sapiens

<400>   101

        Ala Thr Arg Ser Ile Gln Val Asp Gly Lys Thr Ile Lys Ala Gln Ile
        1               5               10              15
```

Trp


```
<210>   102
<211>   13
<212>   PRT
<213>   Homo sapiens

<400>   102

        Arg Ser Ile Gln Val Asp Gly Lys Thr Ile Lys Ala Gln
        1               5               10
```


```
<210>   103
<211>   9
<212>   PRT
<213>   Homo sapiens

<400>   103

        Ile Gln Pro Ile Phe Ala Val Thr Ser
        1               5
```


```
<210>   104
<211>   9
<212>   PRT
<213>   Homo sapiens

<400>   104

        Val Phe Gly Glu Asp Ser Val Gly Val
        1               5
```


```
<210>   105
<211>   9
<212>   PRT
```

```
<213>  Homo sapiens

<400>  105

Leu Lys Met Thr Val Val Lys Leu Ile
1               5


<210>  106
<211>  9
<212>  PRT
<213>  Homo sapiens

<400>  106

Tyr Leu Gln Met Asn Ser Leu Arg Ala
1               5


<210>  107
<211>  9
<212>  PRT
<213>  Homo sapiens

<400>  107

Tyr Thr Tyr Ser Glu Asn Arg Val Glu
1               5


<210>  108
<211>  9
<212>  PRT
<213>  Homo sapiens

<400>  108

Tyr Tyr Ser Phe Ala Ser Gln Gln Gln
1               5


<210>  109
<211>  9
<212>  PRT
<213>  Homo sapiens

<400>  109

Phe Val Pro Ala Lys Val Glu Asp Ser
1               5


<210>  110
<211>  9
<212>  PRT
<213>  Homo sapiens

<400>  110

Leu His Leu Asp His Asn Gln Ile Ser
1               5


<210>  111
<211>  9
<212>  PRT
<213>  Homo sapiens

<400>  111
```

```
Met Arg Tyr Glu His Ile Asp His Thr
1                   5
```

<210>   112
<211>   9
<212>   PRT
<213>   Homo sapiens

<400>   112

```
Phe Leu Gln Asp Glu Ile Ile Asp Lys
1                   5
```

<210>   113
<211>   9
<212>   PRT
<213>   Homo sapiens

<400>   113

```
Met Val Asn Ile Glu Asn Pro Glu Gly
1                   5
```

<210>   114
<211>   9
<212>   PRT
<213>   Homo sapiens

<400>   114

```
Leu Met Gln Ala Leu Pro Met Gly Ala
1                   5
```

<210>   115
<211>   9
<212>   PRT
<213>   Homo sapiens

<400>   115

```
Trp Ala Phe Gln Glu Thr Ser Val Glu
1                   5
```

<210>   116
<211>   9
<212>   PRT
<213>   Homo sapiens

<400>   116

```
Tyr Thr Leu Asn Asp Asn Ala Arg Ser
1                   5
```

<210>   117
<211>   9
<212>   PRT
<213>   Homo sapiens

<400>   117

```
Tyr Ser Val Ser Asn Ser Glu Lys Asp
1                   5
```

```
          <210>   118
          <211>   9
          <212>   PRT
          <213>   Homo sapiens
    5
          <400>   118

          Leu Thr Leu Ser Lys Thr Glu Leu Gly
          1               5
   10

          <210>   119
          <211>   9
          <212>   PRT
   15     <213>   Homo sapiens

          <400>   119

          Tyr Thr Gly Glu Asp Val Thr Pro Gln
   20     1               5


          <210>   120
          <211>   9
   25     <212>   PRT
          <213>   Homo sapiens

          <400>   120

   30     Phe His Gln Ala Ile Asn Asp Ala His
          1               5


          <210>   121
   35     <211>   9
          <212>   PRT
          <213>   Homo sapiens

          <400>   121
   40
          Phe Lys Thr Leu Asn Val Leu His Asn
          1               5


   45     <210>   122
          <211>   9
          <212>   PRT
          <213>   Homo sapiens

   50     <400>   122

          Ile Gln Val Asp Gly Lys Thr Ile Lys
          1               5

   55
          <210>   123
          <211>   769
          <212>   PRT
          <213>   Homo sapiens
   60
          <300>
          <308>   Swissprot/P05107
          <309>   1987-08-13
          <313>   (1)..(769)
   65
          <400>   123

          Met Leu Gly Leu Arg Pro Pro Leu Leu Ala Leu Val Gly Leu Leu Ser
          1               5                   10                  15
   70
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```
        Leu Gly Cys Val Leu Ser Gln Glu Cys Thr Lys Phe Lys Val Ser Ser
                    20                  25                  30

 5      Cys Arg Glu Cys Ile Glu Ser Gly Pro Gly Cys Thr Trp Cys Gln Lys
                35                  40                  45

10      Leu Asn Phe Thr Gly Pro Gly Asp Pro Asp Ser Ile Arg Cys Asp Thr
                50                  55                  60

15      Arg Pro Gln Leu Leu Met Arg Gly Cys Ala Ala Asp Asp Ile Met Asp
        65                  70                  75                  80

20      Pro Thr Ser Leu Ala Glu Thr Gln Glu Asp His Asn Gly Gly Gln Lys
                        85                  90                  95

        Gln Leu Ser Pro Gln Lys Val Thr Leu Tyr Leu Arg Pro Gly Gln Ala
                    100                 105                 110

25      Ala Ala Phe Asn Val Thr Phe Arg Arg Ala Lys Gly Tyr Pro Ile Asp
                    115                 120                 125

30      Leu Tyr Tyr Leu Met Asp Leu Ser Tyr Ser Met Leu Asp Asp Leu Arg
                130                 135                 140

35      Asn Val Lys Lys Leu Gly Gly Asp Leu Leu Arg Ala Leu Asn Glu Ile
        145                 150                 155                 160

        Thr Glu Ser Gly Arg Ile Gly Phe Gly Ser Phe Val Asp Lys Thr Val
                    165                 170                 175

40      Leu Pro Phe Val Asn Thr His Pro Asp Lys Leu Arg Asn Pro Cys Pro
                    180                 185                 190

45      Asn Lys Glu Lys Glu Cys Gln Pro Pro Phe Ala Phe Arg His Val Leu
                    195                 200                 205

50      Lys Leu Thr Asn Asn Ser Asn Gln Phe Gln Thr Glu Val Gly Lys Gln
                    210                 215                 220

        Leu Ile Ser Gly Asn Leu Asp Ala Pro Glu Gly Gly Leu Asp Ala Met
55      225                 230                 235                 240

        Met Gln Val Ala Ala Cys Pro Glu Glu Ile Gly Trp Arg Asn Val Thr
                        245                 250                 255

60      Arg Leu Leu Val Phe Ala Thr Asp Asp Gly Phe His Phe Ala Gly Asp
                    260                 265                 270

65      Gly Lys Leu Gly Ala Ile Leu Thr Pro Asn Asp Gly Arg Cys His Leu
                    275                 280                 285

70      Glu Asp Asn Leu Tyr Lys Arg Ser Asn Glu Phe Asp Tyr Pro Ser Val
```

                   290   295   300

      5   Gly Gln Leu Ala His Lys Leu Ala Glu Asn Asn Ile Gln Pro Ile Phe
             305   310   315   320

     10   Ala Val Thr Ser Arg Met Val Lys Thr Tyr Glu Lys Leu Thr Glu Ile
                         325   330   335

     15   Ile Pro Lys Ser Ala Val Gly Glu Leu Ser Glu Asp Ser Ser Asn Val
                         340   345   350

     20   Val His Leu Ile Lys Asn Ala Tyr Asn Lys Leu Ser Ser Arg Val Phe
                         355   360   365

     25   Leu Asp His Asn Ala Leu Pro Asp Thr Leu Lys Val Thr Tyr Asp Ser
                         370   375   380

     30   Phe Cys Ser Asn Gly Val Thr His Arg Asn Gln Pro Arg Gly Asp Cys
             385   390   395   400

     30   Asp Gly Val Gln Ile Asn Val Pro Ile Thr Phe Gln Val Lys Val Thr
                             405   410   415

     35   Ala Thr Glu Cys Ile Gln Glu Gln Ser Phe Val Ile Arg Ala Leu Gly
                         420   425   430

     35   Phe Thr Asp Ile Val Thr Val Gln Val Leu Pro Gln Cys Glu Cys Arg
                         435   440   445

     40   Cys Arg Asp Gln Ser Arg Asp Arg Ser Leu Cys His Gly Lys Gly Phe
                 450   455   460

     45   Leu Glu Cys Gly Ile Cys Arg Cys Asp Thr Gly Tyr Ile Gly Lys Asn
             465   470   475   480

     50   Cys Glu Cys Gln Thr Gln Gly Arg Ser Ser Gln Glu Leu Glu Gly Ser
                         485   490   495

     50   Cys Arg Lys Asp Asn Asn Ser Ile Ile Cys Ser Gly Leu Gly Asp Cys
                         500   505   510

     55   Val Cys Gly Gln Cys Leu Cys His Thr Ser Asp Val Pro Gly Lys Leu
                         515   520   525

     60   Ile Tyr Gly Gln Tyr Cys Glu Cys Asp Thr Ile Asn Cys Glu Arg Tyr
                 530   535   540

     65   Asn Gly Gln Val Cys Gly Gly Pro Gly Arg Gly Leu Cys Phe Cys Gly
             545   550   555   560

     70   Lys Cys Arg Cys His Pro Gly Phe Glu Gly Ser Ala Cys Gln Cys Glu
                         565   570   575

```
        Arg Thr Thr Glu Gly Cys Leu Asn Pro Arg Arg Val Glu Cys Ser Gly
                    580             585             590
 5

        Arg Gly Arg Cys Arg Cys Asn Val Cys Glu Cys His Ser Gly Tyr Gln
                595             600             605

10      Leu Pro Leu Cys Gln Glu Cys Pro Gly Cys Pro Ser Pro Cys Gly Lys
            610             615             620

        Tyr Ile Ser Cys Ala Glu Cys Leu Lys Phe Glu Lys Gly Pro Phe Gly
15      625             630             635             640

        Lys Asn Cys Ser Ala Ala Cys Pro Gly Leu Gln Leu Ser Asn Asn Pro
                    645             650             655
20

        Val Lys Gly Arg Thr Cys Lys Glu Arg Asp Ser Glu Gly Cys Trp Val
                660             665             670

25
        Ala Tyr Thr Leu Glu Gln Gln Asp Gly Met Asp Arg Tyr Leu Ile Tyr
                675             680             685

30      Val Asp Glu Ser Arg Glu Cys Val Ala Gly Pro Asn Ile Ala Ala Ile
            690             695             700

        Val Gly Gly Thr Val Ala Gly Ile Val Leu Ile Gly Ile Leu Leu Leu
35      705             710             715             720

        Val Ile Trp Lys Ala Leu Ile His Leu Ser Asp Leu Arg Glu Tyr Arg
                    725             730             735
40

        Arg Phe Glu Lys Glu Lys Leu Lys Ser Gln Trp Asn Asn Asp Asn Pro
                740             745             750

45
        Leu Phe Lys Ser Ala Thr Thr Thr Val Met Asn Pro Lys Phe Ala Glu
                755             760             765

50      Ser


        <210>  124
55      <211>  1070
        <212>  PRT
        <213>  Homo sapiens

        <300>
60      <308>  Swissprot/P42338
        <309>  1995-11-01
        <313>  (1)..(1070)

        <400>  124
65
        Met Cys Phe Ser Phe Ile Met Pro Pro Ala Met Ala Asp Ile Leu Asp
        1           5               10              15

70      Ile Trp Ala Val Asp Ser Gln Ile Ala Ser Asp Gly Ser Ile Pro Val
```

                    20   25   30

        Asp Phe Leu Leu Pro Thr Gly Ile Tyr Ile Gln Leu Glu Val Pro Arg
                35   40   45

        Glu Ala Thr Ile Ser Tyr Ile Lys Gln Met Leu Trp Lys Gln Val His
                50   55   60

        Asn Tyr Pro Met Phe Asn Leu Leu Met Asp Ile Asp Ser Tyr Met Phe
        65   70   75   80

        Ala Cys Val Asn Gln Thr Ala Val Tyr Glu Glu Leu Glu Asp Glu Thr
                        85   90   95

        Arg Arg Leu Cys Asp Val Arg Pro Phe Leu Pro Val Leu Lys Leu Val
                    100   105   110

        Thr Arg Ser Cys Asp Pro Gly Glu Lys Leu Asp Ser Lys Ile Gly Val
                    115   120   125

        Leu Ile Gly Lys Gly Leu His Glu Phe Asp Ser Leu Lys Asp Pro Glu
                    130   135   140

        Val Asn Glu Phe Arg Arg Lys Met Arg Lys Phe Ser Glu Glu Lys Ile
        145   150   155   160

        Leu Ser Leu Val Gly Leu Ser Trp Met Asp Trp Leu Lys Gln Thr Tyr
                            165   170   175

        Pro Pro Glu His Glu Pro Ser Ile Pro Glu Asn Leu Glu Asp Lys Leu
                    180   185   190

        Tyr Gly Gly Lys Leu Ile Val Ala Val His Phe Glu Asn Cys Gln Asp
                    195   200   205

        Val Phe Ser Phe Gln Val Ser Pro Asn Met Asn Pro Ile Lys Val Asn
        210   215   220

        Glu Leu Ala Ile Gln Lys Arg Leu Thr Ile His Gly Lys Glu Asp Glu
        225   230   235   240

        Val Ser Pro Tyr Asp Tyr Val Leu Gln Val Ser Gly Arg Val Glu Tyr
                        245   250   255

        Val Phe Gly Asp His Pro Leu Ile Gln Phe Gln Tyr Ile Arg Asn Cys
                    260   265   270

        Val Met Asn Arg Ala Leu Pro His Phe Ile Leu Val Glu Cys Cys Lys
                    275   280   285

        Ile Lys Lys Met Tyr Glu Gln Glu Met Ile Ala Ile Glu Ala Ala Ile
                    290   295   300

Asn Arg Asn Ser Ser Asn Leu Pro Leu Pro Leu Pro Pro Lys Lys Thr
305   310   315   320

Arg Ile Ile Ser His Val Trp Glu Asn Asn Asn Pro Phe Gln Ile Val
            325   330   335

Leu Val Lys Gly Asn Lys Leu Asn Thr Glu Glu Thr Val Lys Val His
            340   345   350

Val Arg Ala Gly Leu Phe His Gly Thr Glu Leu Leu Cys Lys Thr Ile
        355   360   365

Val Ser Ser Glu Val Ser Gly Lys Asn Asp His Ile Trp Asn Glu Pro
    370   375   380

Leu Glu Phe Asp Ile Asn Ile Cys Asp Leu Pro Arg Met Ala Arg Leu
385   390   395   400

Cys Phe Ala Val Tyr Ala Val Leu Asp Lys Val Lys Thr Lys Lys Ser
            405   410   415

Thr Lys Thr Ile Asn Pro Ser Lys Tyr Gln Thr Ile Arg Lys Ala Gly
            420   425   430

Lys Val His Tyr Pro Val Ala Trp Val Asn Thr Met Val Phe Asp Phe
        435   440   445

Lys Gly Gln Leu Arg Thr Gly Asp Ile Ile Leu His Ser Trp Ser Ser
    450   455   460

Phe Pro Asp Glu Leu Glu Glu Met Leu Asn Pro Met Gly Thr Val Gln
465   470   475   480

Thr Asn Pro Tyr Thr Glu Asn Ala Thr Ala Leu His Val Lys Phe Pro
            485   490   495

Glu Asn Lys Lys Gln Pro Tyr Tyr Tyr Pro Pro Phe Asp Lys Ile Ile
            500   505   510

Glu Lys Ala Ala Glu Ile Ala Ser Ser Asp Ser Ala Asn Val Ser Ser
        515   520   525

Arg Gly Gly Lys Lys Phe Leu Pro Val Leu Lys Glu Ile Leu Asp Arg
    530   535   540

Asp Pro Leu Ser Gln Leu Cys Glu Asn Glu Met Asp Leu Ile Trp Thr
545   550   555   560

Leu Arg Gln Asp Cys Arg Glu Ile Phe Pro Gln Ser Leu Pro Lys Leu
            565   570   575

Leu Leu Ser Ile Lys Trp Asn Lys Leu Glu Asp Val Ala Gln Leu Gln

	580					585					590	

5   Ala Leu Leu Gln Ile Trp Pro Lys Leu Pro Pro Arg Glu Ala Leu Glu
              595   600   605

     Leu Leu Asp Phe Asn Tyr Pro Asp Gln Tyr Val Arg Glu Tyr Ala Val
              610   615   620
10

     Gly Cys Leu Arg Gln Met Ser Asp Glu Glu Leu Ser Gln Tyr Leu Leu
     625   630   635   640

15
     Gln Leu Val Gln Val Leu Lys Tyr Glu Pro Phe Leu Asp Cys Ala Leu
                   645   650   655

20   Ser Arg Phe Leu Leu Glu Arg Ala Leu Gly Asn Arg Arg Ile Gly Gln
                   660   665   670

     Phe Leu Phe Trp His Leu Arg Ser Glu Val His Ile Pro Ala Val Ser
25   675   680   685

     Val Gln Phe Gly Val Ile Leu Glu Ala Tyr Cys Arg Gly Ser Val Gly
         690   695   700
30

     His Met Lys Val Leu Ser Lys Gln Val Glu Ala Leu Asn Lys Leu Lys
     705   710   715   720

35
     Thr Leu Asn Ser Leu Ile Lys Leu Asn Ala Val Lys Leu Asn Arg Ala
                   725   730   735

40   Lys Gly Lys Glu Ala Met His Thr Cys Leu Lys Gln Ser Ala Tyr Arg
                   740   745   750

     Glu Ala Leu Ser Asp Leu Gln Ser Pro Leu Asn Pro Cys Val Ile Leu
              755   760   765
45

     Ser Glu Leu Tyr Val Glu Lys Cys Lys Tyr Met Asp Ser Lys Met Lys
         770   775   780
50

     Pro Leu Trp Leu Val Tyr Asn Asn Lys Val Phe Gly Glu Asp Ser Val
     785   790   795   800

55
     Gly Val Ile Phe Lys Asn Gly Asp Asp Leu Arg Gln Asp Met Leu Thr
                   805   810   815

60   Leu Gln Met Leu Arg Leu Met Asp Leu Leu Trp Lys Glu Ala Gly Leu
              820   825   830

     Asp Leu Arg Met Leu Pro Tyr Gly Cys Leu Ala Thr Gly Asp Arg Ser
              835   840   845
65

     Gly Leu Ile Glu Val Val Ser Thr Ser Glu Thr Ile Ala Asp Ile Gln
         850   855   860
70

Leu Asn Ser Ser Asn Val Ala Ala Ala Ala Ala Phe Asn Lys Asp Ala
865   870   875   880

Leu Leu Asn Trp Leu Lys Glu Tyr Asn Ser Gly Asp Asp Leu Asp Arg
              885   890   895

Ala Ile Glu Glu Phe Thr Leu Ser Cys Ala Gly Tyr Cys Val Ala Ser
              900   905   910

Tyr Val Leu Gly Ile Gly Asp Arg His Ser Asp Asn Ile Met Val Lys
          915   920   925

Lys Thr Gly Gln Leu Phe His Ile Asp Phe Gly His Ile Leu Gly Asn
        930   935   940

Phe Lys Ser Lys Phe Gly Ile Lys Arg Glu Arg Val Pro Phe Ile Leu
945   950   955   960

Thr Tyr Asp Phe Ile His Val Ile Gln Gln Gly Lys Thr Gly Asn Thr
              965   970   975

Glu Lys Phe Gly Arg Phe Arg Gln Cys Cys Glu Asp Ala Tyr Leu Ile
              980   985   990

Leu Arg Arg His Gly Asn Leu Phe Ile Thr Leu Phe Ala Leu Met Leu
        995   1000   1005

Thr Ala Gly Leu Pro Glu Leu Thr Ser Val Lys Asp Ile Gln Tyr
    1010   1015   1020

Leu Lys Asp Ser Leu Ala Leu Gly Lys Ser Glu Glu Glu Ala Leu
    1025   1030   1035

Lys Gln Phe Lys Gln Lys Phe Asp Glu Ala Leu Arg Glu Ser Trp
    1040   1045   1050

Thr Thr Lys Val Asn Trp Met Ala His Thr Val Arg Lys Asp Tyr
    1055   1060   1065

Arg Ser
    1070

<210>   125
<211>   431
<212>   PRT
<213>   Homo sapiens

<300>
<308>   Swissprot/P00749
<309>   1986-07-21
<313>   (1)..(431)

<400>   125

Met Arg Ala Leu Leu Ala Arg Leu Leu Leu Cys Val Leu Val Val Ser

	1				5					10					15

5
Asp Ser Lys Gly Ser Asn Glu Leu His Gln Val Pro Ser Asn Cys Asp
         20   25   30

10
Cys Leu Asn Gly Gly Thr Cys Val Ser Asn Lys Tyr Phe Ser Asn Ile
         35   40   45

His Trp Cys Asn Cys Pro Lys Lys Phe Gly Gly Gln His Cys Glu Ile
     50   55   60

15
Asp Lys Ser Lys Thr Cys Tyr Glu Gly Asn Gly His Phe Tyr Arg Gly
65   70   75   80

20
Lys Ala Ser Thr Asp Thr Met Gly Arg Pro Cys Leu Pro Trp Asn Ser
         85   90   95

25
Ala Thr Val Leu Gln Gln Thr Tyr His Ala His Arg Ser Asp Ala Leu
         100   105   110

30
Gln Leu Gly Leu Gly Lys His Asn Tyr Cys Arg Asn Pro Asp Asn Arg
         115   120   125

35
Arg Arg Pro Trp Cys Tyr Val Gln Val Gly Leu Lys Pro Leu Val Gln
    130   135   140

Glu Cys Met Val His Asp Cys Ala Asp Gly Lys Lys Pro Ser Ser Pro
145   150   155   160

40
Pro Glu Glu Leu Lys Phe Gln Cys Gly Gln Lys Thr Leu Arg Pro Arg
          165   170   175

45
Phe Lys Ile Ile Gly Gly Glu Phe Thr Thr Ile Glu Asn Gln Pro Trp
         180   185   190

Phe Ala Ala Ile Tyr Arg Arg His Arg Gly Gly Ser Val Thr Tyr Val
         195   200   205

50
Cys Gly Gly Ser Leu Met Ser Pro Cys Trp Val Ile Ser Ala Thr His
     210   215   220

55
Cys Phe Ile Asp Tyr Pro Lys Lys Glu Asp Tyr Ile Val Tyr Leu Gly
225   230   235   240

60
Arg Ser Arg Leu Asn Ser Asn Thr Gln Gly Glu Met Lys Phe Glu Val.
         245   250   255

Glu Asn Leu Ile Leu His Lys Asp Tyr Ser Ala Asp Thr Leu Ala His
         260   265   270

65
His Asn Asp Ile Ala Leu Leu Lys Ile Arg Ser Lys Glu Gly Arg Cys
         275   280   285

70

```
        Ala Gln Pro Ser Arg Thr Ile Gln Thr Ile Cys Leu Pro Ser Met Tyr
            290                 295             300

 5
        Asn Asp Pro Gln Phe Gly Thr Ser Cys Glu Ile Thr Gly Phe Gly Lys
        305             310                 315             320

10
        Glu Asn Ser Thr Asp Tyr Leu Tyr Pro Glu Gln Leu Lys Met Thr Val
                        325             330                 335

        Val Lys Leu Ile Ser His Arg Glu Cys Gln Gln Pro His Tyr Tyr Gly
15                  340             345             350

        Ser Glu Val Thr Thr Lys Met Leu Cys Ala Ala Asp Pro Gln Trp Lys
                355             360             365
20
        Thr Asp Ser Cys Gln Gly Asp Ser Gly Gly Pro Leu Val Cys Ser Leu
            370             375             380

25
        Gln Gly Arg Met Thr Leu Thr Gly Ile Val Ser Trp Gly Arg Gly Cys
        385             390             395             400

30
        Ala Leu Lys Asp Lys Pro Gly Val Tyr Thr Arg Val Ser His Phe Leu
                    405             410             415

        Pro Trp Ile Arg Ser His Thr Lys Glu Glu Asn Gly Leu Ala Leu
35                  420             425             430
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<210> 126
<211> 117
<212> PRT
<213> Homo sapiens

<300>
<308> Swissprot/P01764
<309> 1986-07-21
<313> (1)..(117)

<400> 126

```
        Met Glu Phe Gly Leu Ser Trp Leu Phe Leu Val Ala Ile Leu Lys Gly
        1           5                   10                  15

        Val Gln Cys Glu Val Gln Leu Leu Glu Ser Gly Gly Gly Leu Val Gln
                    20              25                  30

        Pro Gly Gly Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe
                    35                  40              45

        Ser Ser Tyr Ala Met Ser Trp Val Arg Gln Ala Pro Gly Lys Gly Leu
            50              55                  60

        Glu Trp Val Ser Ala Ile Ser Gly Ser Gly Gly Ser Thr Tyr Tyr Gly
        65                  70                  75                  80

        Asp Ser Val Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser Lys Asn
```

```
                        85                     90                      95


      Thr Leu Tyr Leu Gln Met Asn Ser Leu Arg Ala Glu Asp Thr Ala Val
5                 100              105              110


      Tyr Tyr Cys Ala Lys
                115
10


      <210>  127
      <211>  189
      <212>  PRT
15    <213>  Homo sapiens

      <300>
      <308>  Swissprot/Q99497
      <309>  1997-05-01
20    <313>  (1)..(189)

      <400>  127

      Met Ala Ser Lys Arg Ala Leu Val Ile Leu Ala Lys Gly Ala Glu Glu
25    1              5                10               15


      Met Glu Thr Val Ile Pro Val Asp Val Met Arg Arg Ala Gly Ile Lys
                20               25               30
30

      Val Thr Val Ala Gly Leu Ala Gly Lys Asp Pro Val Gln Cys Ser Arg
                35               40               45

35
      Asp Val Val Ile Cys Pro Asp Ala Ser Leu Glu Asp Ala Lys Lys Glu
                50               55               60


      Gly Pro Tyr Asp Val Val Val Leu Pro Gly Gly Asn Leu Gly Ala Gln
40    65               70               75               80


      Asn Leu Ser Glu Ser Ala Ala Val Lys Glu Ile Leu Lys Glu Gln Glu
45                85               90               95


      Asn Arg Lys Gly Leu Ile Ala Ala Ile Cys Ala Gly Pro Thr Ala Leu
                100              105              110
50

      Leu Ala His Glu Ile Gly Phe Gly Ser Lys Val Thr Thr His Pro Leu
                115              120              125

55
      Ala Lys Asp Lys Met Met Asn Gly Gly His Tyr Thr Tyr Ser Glu Asn
                130              135              140


      Arg Val Glu Lys Asp Gly Leu Ile Leu Thr Ser Arg Gly Pro Gly Thr
60    145              150              155              160


      Ser Phe Glu Phe Ala Leu Ala Ile Val Glu Ala Leu Asn Gly Lys Glu
65                165              170              175


      Val Ala Ala Gln Val Lys Ala Pro Leu Val Leu Lys Asp
                180              185
70
```

```
<210>  128
<211>  257
<212>  PRT
<213>  Homo sapiens

<300>
<308>  Swissprot/P48556
<309>  1996-02-01
<313>  (1)..(257)

<400>  128
```

Met Tyr Glu Gln Leu Lys Gly Glu Trp Asn Arg Lys Ser Pro Asn Leu
1   5   10   15

Ser Lys Cys Gly Glu Glu Leu Gly Arg Leu Lys Leu Val Leu Leu Glu
            20   25   30

Leu Asn Phe Leu Pro Thr Thr Gly Thr Lys Leu Thr Lys Gln Gln Leu
            35   40   45

Ile Leu Ala Arg Asp Ile Leu Glu Ile Gly Ala Gln Trp Ser Ile Leu
        50   55   60

Arg Lys Asp Ile Pro Ser Phe Glu Arg Tyr Met Ala Gln Leu Lys Cys
65   70   75   80

Tyr Tyr Phe Asp Tyr Lys Glu Gln Leu Pro Glu Ser Ala Tyr Met His
                85   90   95

Gln Leu Leu Gly Leu Asn Leu Leu Phe Leu Leu Ser Gln Asn Arg Val
            100   105   110

Ala Glu Phe His Thr Glu Leu Glu Arg Leu Pro Ala Lys Asp Ile Gln
            115   120   125

Thr Asn Val Tyr Ile Lys His Pro Val Ser Leu Glu Gln Tyr Leu Met
        130   135   140

Glu Gly Ser Tyr Asn Lys Val Phe Leu Ala Lys Gly Asn Ile Pro Ala
145   150   155   160

Glu Ser Tyr Thr Phe Phe Ile Asp Ile Leu Leu Asp Thr Ile Arg Asp
                165   170   175

Glu Ile Ala Gly Cys Ile Glu Lys Ala Tyr Glu Lys Ile Leu Phe Thr
            180   185   190

Glu Ala Thr Arg Ile Leu Phe Phe Asn Thr Pro Lys Lys Met Thr Asp
            195   200   205

Tyr Ala Lys Lys Arg Gly Trp Val Leu Gly Pro Asn Asn Tyr Tyr Ser
210   215   220

Phe Ala Ser Gln Gln Gln Lys Pro Glu Asp Thr Thr Ile Pro Ser Thr

```
                225                   230                   235                   240

        Glu Leu Ala Lys Gln Val Ile Glu Tyr Ala Arg Gln Leu Glu Met Ile
  5                     245                   250                   255

        Val

 10

        <210>  129
        <211>  569
        <212>  PRT
 15     <213>  Homo sapiens

        <300>
        <308>  Swissprot/P14778
        <309>  1990-04-01
 20     <313>  (1)..(569)

        <400>  129

        Met Lys Val Leu Leu Arg Leu Ile Cys Phe Ile Ala Leu Leu Ile Ser
 25     1               5                   10                  15

        Ser Leu Glu Ala Asp Lys Cys Lys Glu Arg Glu Glu Lys Ile Ile Leu
                        20                  25                  30
 30

        Val Ser Ser Ala Asn Glu Ile Asp Val Arg Pro Cys Pro Leu Asn Pro
                        35                  40                  45
 35

        Asn Glu His Lys Gly Thr Ile Thr Trp Tyr Lys Asp Asp Ser Lys Thr
            50                  55                  60

 40     Pro Val Ser Thr Glu Gln Ala Ser Arg Ile His Gln His Lys Glu Lys
        65                  70                  75                  80

        Leu Trp Phe Val Pro Ala Lys Val Glu Asp Ser Gly His Tyr Tyr Cys
 45                     85                  90                  95

        Val Val Arg Asn Ser Ser Tyr Cys Leu Arg Ile Lys Ile Ser Ala Lys
                        100                 105                 110
 50

        Phe Val Glu Asn Glu Pro Asn Leu Cys Tyr Asn Ala Gln Ala Ile Phe
                        115                 120                 125
 55

        Lys Gln Lys Leu Pro Val Ala Gly Asp Gly Gly Leu Val Cys Pro Tyr
            130                 135                 140

 60     Met Glu Phe Phe Lys Asn Glu Asn Asn Glu Leu Pro Lys Leu Gln Trp
        145                 150                 155                 160

        Tyr Lys Asp Cys Lys Pro Leu Leu Leu Asp Asn Ile His Phe Ser Gly
 65                     165                 170                 175

        Val Lys Asp Arg Leu Ile Val Met Asn Val Ala Glu Lys His Arg Gly
 70                     180                 185                 190
```

Asn Tyr Thr Cys His Ala Ser Tyr Thr Tyr Leu Gly Lys Gln Tyr Pro
        195   200   205

5

Ile Thr Arg Val Ile Glu Phe Ile Thr Leu Glu Glu Asn Lys Pro Thr
        210   215   220

10

Arg Pro Val Ile Val Ser Pro Ala Asn Glu Thr Met Glu Val Asp Leu
225   230   235   240

15

Gly Ser Gln Ile Gln Leu Ile Cys Asn Val Thr Gly Gln Leu Ser Asp
                245   250   255

Ile Ala Tyr Trp Lys Trp Asn Gly Ser Val Ile Asp Glu Asp Asp Pro
            260   265   270

20

Val Leu Gly Glu Asp Tyr Tyr Ser Val Glu Asn Pro Ala Asn Lys Arg
            275   280   285

25

Arg Ser Thr Leu Ile Thr Val Leu Asn Ile Ser Glu Ile Glu Ser Arg
        290   295   300

30

Phe Tyr Lys His Pro Phe Thr Cys Phe Ala Lys Asn Thr His Gly Ile
305   310   315   320

Asp Ala Ala Tyr Ile Gln Leu Ile Tyr Pro Val Thr Asn Phe Gln Lys
35   325   330   335

His Met Ile Gly Ile Cys Val Thr Leu Thr Val Ile Ile Val Cys Ser
                340   345   350

40

Val Phe Ile Tyr Lys Ile Phe Lys Ile Asp Ile Val Leu Trp Tyr Arg
        355   360   365

45

Asp Ser Cys Tyr Asp Phe Leu Pro Ile Lys Ala Ser Asp Gly Lys Thr
        370   375   380

50

Tyr Asp Ala Tyr Ile Leu Tyr Pro Lys Thr Val Gly Glu Gly Ser Thr
385   390   395   400

Ser Asp Cys Asp Ile Phe Val Phe Lys Val Leu Pro Glu Val Leu Glu
55   405   410   415

Lys Gln Cys Gly Tyr Lys Leu Phe Ile Tyr Gly Arg Asp Asp Tyr Val
                420   425   430

60

Gly Glu Asp Ile Val Glu Val Ile Asn Glu Asn Val Lys Lys Ser Arg
            435   440   445

65

Arg Leu Ile Ile Ile Leu Val Arg Glu Thr Ser Gly Phe Ser Trp Leu
        450   455   460

70

Gly Gly Ser Ser Glu Glu Gln Ile Ala Met Tyr Asn Ala Leu Val Gln

```
                465                     470                     475                     480

  .        Asp Gly Ile Lys Val Val Leu Leu Glu Leu Glu Lys Ile Gln Asp Tyr
  5                           485                 490                 495

           Glu Lys Met Pro Glu Ser Ile Lys Phe Ile Lys Gln Lys His Gly Ala
                       500                 505                 510
 10

           Ile Arg Trp Ser Gly Asp Phe Thr Gln Gly Pro Gln Ser Ala Lys Thr
                   515                 520                 525
 15
           Arg Phe Trp Lys Asn Val Arg Tyr His Met Pro Val Gln Arg Arg Ser
                   530                 535                 540

 20        Pro Ser Ser Lys His Gln Leu Leu Ser Pro Ala Thr Lys Glu Lys Leu
           545                 550                 555                 560

           Gln Arg Glu Ala His Val Pro Leu Gly
 25                        565
```

<210> 130
<211> 376
<212> PRT
<213> Homo sapiens

<300>
<308> Swissprot/Q06828
<309> 1994-06-01
<313> (1)..(376)

<400> 130

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           Met Gln Trp Thr Ser Leu Leu Leu Leu Ala Gly Leu Phe Ser Leu Ser
           1               5                   10                  15

           Gln Ala Gln Tyr Glu Asp Asp Pro His Trp Trp Phe His Tyr Leu Arg
                       20                  25                  30 .

           Ser Gln Gln Ser Thr Tyr Tyr Asp Pro Tyr Asp Pro Tyr Pro Tyr Glu
                       35                  40                  45

           Thr Tyr Glu Pro Tyr Pro Tyr Gly Val Asp Glu Gly Pro Ala Tyr Thr
               50                  55                  60

           Tyr Gly Ser Pro Ser Pro Pro Asp Pro Arg Asp Cys Pro Gln Glu Cys
           65                  70                  75                  80

           Asp Cys Pro Pro Asn Phe Pro Thr Ala Met Tyr Cys Asp Asn Arg Asn
                           85                  90                  95

           Leu Lys Tyr Leu Pro Phe Val Pro Ser Arg Met Lys Tyr Val Tyr Phe
                       100                 105                 110

           Gln Asn Asn Gln Ile Thr Ser Ile Gln Glu Gly Val Phe Asp Asn Ala
                       115                 120                 125
```

```
        Thr Gly Leu Leu Trp Ile Ala Leu His Gly Asn Gln Ile Thr Ser Asp
            130             135             140

        Lys Val Gly Arg Lys Val Phe Ser Lys Leu Arg His Leu Glu Arg Leu
        145             150             155             160

        Tyr Leu Asp His Asn Asn Leu Thr Arg Met Pro Gly Pro Leu Pro Arg
                        165             170             175

        Ser Leu Arg Glu Leu His Leu Asp His Asn Gln Ile Ser Arg Val Pro
                        180             185             190

        Asn Asn Ala Leu Glu Gly Leu Glu Asn Leu Thr Ala Leu Tyr Leu Gln
                        195             200             205

        His Asn Glu Ile Gln Glu Val Gly Ser Ser Met Arg Gly Leu Arg Ser
            210             215             220

        Leu Tyr Leu Leu Asp Leu Ser Tyr Asn His Leu Arg Lys Val Pro Asp
        225             230             235             240

        Gly Leu Pro Ser Ala Leu Glu Gln Leu Tyr Met Glu His Asn Asn Val
                        245             250             255

        Tyr Thr Val Pro Asp Ser Tyr Phe Arg Gly Ala Pro Lys Leu Leu Tyr
                        260             265             270

        Val Arg Leu Ser His Asn Ser Leu Thr Asn Asn Gly Leu Ala Ser Asn
                        275             280             285

        Thr Phe Asn Ser Ser Ser Leu Leu Glu Leu Asp Leu Ser Tyr Asn Gln
            290             295             300

        Leu Gln Lys Ile Pro Pro Val Asn Thr Asn Leu Glu Asn Leu Tyr Leu
        305             310             315             320

        Gln Gly Asn Arg Ile Asn Glu Phe Ser Ile Ser Ser Phe Cys Thr Val
                        325             330             335

        Val Asp Val Val Asn Phe Ser Gln Leu Gln Val Val Arg Leu Asp Gly
                        340             345             350

        Asn Glu Met Lys Arg Ser Ala Met Pro Ala Glu Ala Pro Leu Cys Leu
            355             360             365

        Arg Leu Ala Ser Leu Ile Glu Ile
            370             375

        <210>   131
        <211>   897
        <212>   PRT
        <213>   Homo sapiens
```

```
     <300>
     <308>   Swissprot/P32927
     <309>   1993-10-01
     <313>   (1)..(897)

5    <400>   131

     Met Val Leu Ala Gln Gly Leu Leu Ser Met Ala Leu Leu Ala Leu Cys
     1               5                   10                  15
10

     Trp Glu Arg Ser Leu Ala Gly Ala Glu Glu Thr Ile Pro Leu Gln Thr
                     20                  25                  30
15

     Leu Arg Cys Tyr Asn Asp Tyr Thr Ser His Ile Thr Cys Arg Trp Ala
                 35                  40                  45

     Asp Thr Gln Asp Ala Gln Arg Leu Val Asn Val Thr Leu Ile Arg Arg
20           50                  55                  60

     Val Asn Glu Asp Leu Leu Glu Pro Val Ser Cys Asp Leu Ser Asp Asp
25   65                  70                  75                  80

     Met Pro Trp Ser Ala Cys Pro His Pro Arg Cys Val Pro Arg Arg Cys
                     85                  90                  95
30

     Val Ile Pro Cys Gln Ser Phe Val Val Thr Asp Val Asp Tyr Phe Ser
                     100                 105                 110
35

     Phe Gln Pro Asp Arg Pro Leu Gly Thr Arg Leu Thr Val Thr Leu Thr
                 115                 120                 125

     Gln His Val Gln Pro Pro Glu Pro Arg Asp Leu Gln Ile Ser Thr Asp
40           130                 135                 140

     Gln Asp His Phe Leu Leu Thr Trp Ser Val Ala Leu Gly Ser Pro Gln
45   145                 150                 155                 160

     Ser His Trp Leu Ser Pro Gly Asp Leu Glu Phe Glu Val Val Tyr Lys
                     165                 170                 175
50

     Arg Leu Gln Asp Ser Trp Glu Asp Ala Ala Ile Leu Leu Ser Asn Thr
                     180                 185                 190

     Ser Gln Ala Thr Leu Gly Pro Glu His Leu Met Pro Ser Ser Thr Tyr
55               195                 200                 205

     Val Ala Arg Val Arg Thr Arg Leu Ala Pro Gly Ser Arg Leu Ser Gly
60               210                 215                 220

     Arg Pro Ser Lys Trp Ser Pro Glu Val Cys Trp Asp Ser Gln Pro Gly
65   225                 230                 235                 240

     Asp Glu Ala Gln Pro Gln Asn Leu Glu Cys Phe Phe Asp Gly Ala Ala
                     245                 250                 255
70
```

Val Leu Ser Cys Ser Trp Glu Val Arg Lys Glu Val Ala Ser Ser Val
        260   265   270

Ser Phe Gly Leu Phe Tyr Lys Pro Ser Pro Asp Ala Gly Glu Glu Glu
        275   280   285

Cys Ser Pro Val Leu Arg Glu Gly Leu Gly Ser Leu His Thr Arg His
    290   295   300

His Cys Gln Ile Pro Val Pro Asp Pro Ala Thr His Gly Gln Tyr Ile
305   310   315   320

Val Ser Val Gln Pro Arg Arg Ala Glu Lys His Ile Lys Ser Ser Val
                325   330   335

Asn Ile Gln Met Ala Pro Pro Ser Leu Asn Val Thr Lys Asp Gly Asp
            340   345   350

Ser Tyr Ser Leu Arg Trp Glu Thr Met Lys Met Arg Tyr Glu His Ile
        355   360   365

Asp His Thr Phe Glu Ile Gln Tyr Arg Lys Asp Thr Ala Thr Trp Lys
    370   375   380

Asp Ser Lys Thr Glu Thr Leu Gln Asn Ala His Ser Met Ala Leu Pro
385   390   395   400

Ala Leu Glu Pro Ser Thr Arg Tyr Trp Ala Arg Val Arg Val Arg Thr
            405   410   415

Ser Arg Thr Gly Tyr Asn Gly Ile Trp Ser Glu Trp Ser Glu Ala Arg
        420   425   430

Ser Trp Asp Thr Glu Ser Val Leu Pro Met Trp Val Leu Ala Leu Ile
    435   440   445

Val Ile Phe Leu Thr Ile Ala Val Leu Leu Ala Leu Arg Phe Cys Gly
    450   455   460

Ile Tyr Gly Tyr Arg Leu Arg Arg Lys Trp Glu Glu Lys Ile Pro Asn
465   470   475   480

Pro Ser Lys Ser His Leu Phe Gln Asn Gly Ser Ala Glu Leu Trp Pro
            485   490   495

Pro Gly Ser Met Ser Ala Phe Thr Ser Gly Ser Pro Pro His Gln Gly
        500   505   510

Pro Trp Gly Ser Arg Phe Pro Glu Leu Glu Gly Val Phe Pro Val Gly
        515   520   525

Phe Gly Asp Ser Glu Val Ser Pro Leu Thr Ile Glu Asp Pro Lys His

                    530   535   540

      Val Cys Asp Pro Pro Ser Gly Pro Asp Thr Thr Pro Ala Ala Ser Asp
  5   545   550   555   560

      Leu Pro Thr Glu Gln Pro Pro Ser Pro Gln Pro Gly Pro Pro Ala Ala
                    565   570   575
 10

      Ser His Thr Pro Glu Lys Gln Ala Ser Ser Phe Asp Phe Asn Gly Pro
                    580   585   590

 15
      Tyr Leu Gly Pro Pro His Ser Arg Ser Leu Pro Asp Ile Leu Gly Gln
                    595   600   605

 20   Pro Glu Pro Pro Gln Glu Gly Gly Ser Gln Lys Ser Pro Pro Pro Gly
          610   615   620

      Ser Leu Glu Tyr Leu Cys Leu Pro Ala Gly Gly Gln Val Gln Leu Val
 25   625   630   635   640

      Pro Leu Ala Gln Ala Met Gly Pro Gly Gln Ala Val Glu Val Glu Arg
                    645   650   655
 30

      Arg Pro Ser Gln Gly Ala Ala Gly Ser Pro Ser Leu Glu Ser Gly Gly
                    660   665   670

 35
      Gly Pro Ala Pro Pro Ala Leu Gly Pro Arg Val Gly Gly Gln Asp Gln
                    675   680   685

 40   Lys Asp Ser Pro Val Ala Ile Pro Met Ser Ser Gly Asp Thr Glu Asp
          690   695   700

      Pro Gly Val Ala Ser Gly Tyr Val Ser Ser Ala Asp Leu Val Phe Thr
 45   705   710   715   720

      Pro Asn Ser Gly Ala Ser Ser Val Ser Leu Val Pro Ser Leu Gly Leu
                    725   730   735
 50

      Pro Ser Asp Gln Thr Pro Ser Leu Cys Pro Gly Leu Ala Ser Gly Pro
                    740   745   750

 55
      Pro Gly Ala Pro Gly Pro Val Lys Ser Gly Phe Glu Gly Tyr Val Glu
                    755   760   765

 60   Leu Pro Pro Ile Glu Gly Arg Ser Pro Arg Ser Pro Arg Asn Asn Pro
          770   775   780

      Val Pro Pro Glu Ala Lys Ser Pro Val Leu Asn Pro Gly Glu Arg Pro
 65   785   790   795   800

      Ala Asp Val Ser Pro Thr Ser Pro Gln Pro Glu Gly Leu Leu Val Leu
                    805   810   815
 70

```
Gln Gln Val Gly Asp Tyr Cys Phe Leu Pro Gly Leu Gly Pro Gly Pro
            820              825              830

Leu Ser Leu Arg Ser Lys Pro Ser Ser Pro Gly Pro Gly Pro Glu Ile
            835              840              845

Lys Asn Leu Asp Gln Ala Phe Gln Val Lys Lys Pro Pro Gly Gln Ala
            850              855              860

Val Pro Gln Val Pro Val Ile Gln Leu Phe Lys Ala Leu Lys Gln Gln
865              870              875              880

Asp Tyr Leu Ser Leu Pro Pro Trp Glu Val Asn Lys Pro Gly Glu Val
                885              890              895

Cys
```

```
<210>  132
<211>  261
<212>  PRT
<213>  Homo sapiens

<300>
<308>  Swissprot/Q60493
<309>  1996-11-01
<313>  (1)..(261)

<400>  132
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```
Met Ile Tyr Lys Cys Pro Met Cys Arg Glu Phe Phe Ser Glu Arg Ala
1               5                   10                  15

Asp Leu Phe Met His Gln Lys Val His Thr Ala Glu Lys Pro His Lys
            20                  25                  30

Cys Asp Lys Cys Asp Lys Gly Phe Phe His Ile Ser Glu Leu His Ile
            35                  40                  45

His Trp Arg Asp His Thr Gly Glu Lys Val Tyr Lys Cys Asp Asp Cys
        50                  55                  60

Gly Lys Asp Phe Ser Thr Thr Thr Lys Leu Asn Arg His Lys Lys Ile
65                  70                  75                  80

His Thr Val Glu Lys Pro Tyr Lys Cys Tyr Glu Cys Gly Lys Ala Phe
                85                  90                  95

Asn Trp Ser Pro His Leu Gln Ile His Met Arg Val His Thr Gly Glu
            100                 105                 110

Lys Pro Tyr Val Cys Ser Glu Cys Gly Arg Gly Phe Ser Asn Ser Ser
            115                 120                 125

Asn Leu Cys Met His Gln Arg Val His Thr Gly Glu Lys Pro Phe Lys
```

```
              130                135                    140

     Cys Glu Glu Cys Gly Lys Ala Phe Arg His Thr Ser Ser Leu Cys Met
     145             150             155                 160

     His Gln Arg Val His Thr Gly Glu Lys Pro Tyr Lys Cys Tyr Glu Cys
                     165             170                 175

     Gly Lys Ala Phe Ser Gln Ser Ser Ser Leu Cys Ile His Gln Arg Val
                 180             185                 190

     His Thr Gly Glu Lys Pro Tyr Arg Cys Cys Gly Cys Gly Lys Ala Phe
                 195             200             205

     Ser Gln Ser Ser Ser Leu Cys Ile His Gln Arg Val His Thr Gly Glu
         210             215             220

     Lys Pro Phe Lys Cys Asp Glu Cys Gly Lys Ala Phe Ser Gln Ser Thr
     225             230             235                 240

     Ser Leu Cys Ile His Gln Arg Val His Thr Lys Glu Arg Asn His Leu
                 245             250             255

     Lys Ile Ser Val Ile
                 260


     <210>    133
     <211>    296
     <212>    PRT
     <213>    Homo sapiens

     <300>
     <308>    Swissprot/P04233
     <309>    1987-03-20
     <313>    (1)..(296)

     <400>    133

     Met His Arg Arg Arg Ser Arg Ser Cys Arg Glu Asp Gln Lys Pro Val
     1               5               10              15

     Met Asp Asp Gln Arg Asp Leu Ile Ser Asn Asn Glu Gln Leu Pro Met
                 20              25                  30

     Leu Gly Arg Arg Pro Gly Ala Pro Glu Ser Lys Cys Ser Arg Gly Ala
                 35              40              45

     Leu Tyr Thr Gly Phe Ser Ile Leu Val Thr Leu Leu Leu Ala Gly Gln
         50              55                  60

     Ala Thr Thr Ala Tyr Phe Leu Tyr Gln Gln Gly Arg Leu Asp Lys
     65              70                  75                  80

     Leu Thr Val Thr Ser Gln Asn Leu Gln Leu Glu Asn Leu Arg Met Lys
                 85              90                  95
```

```
      Leu Pro Lys Pro Pro Lys Pro Val Ser Lys Met Arg Met Ala Thr Pro
              100             105             110

Leu Leu Met Gln Ala Leu Pro Met Gly Ala Leu Pro Gln Gly Pro Met
            115             120             125

Gln Asn Ala Thr Lys Tyr Gly Asn Met Thr Glu Asp His Val Met His
        130             135             140

Leu Leu Gln Asn Ala Asp Pro Leu Lys Val Tyr Pro Pro Leu Lys Gly
145             150             155             160

Ser Phe Pro Glu Asn Leu Arg His Leu Lys Asn Thr Met Glu Thr Ile
                165             170             175

Asp Trp Lys Val Phe Glu Ser Trp Met His His Trp Leu Leu Phe Glu
            180             185             190

Met Ser Arg His Ser Leu Glu Gln Lys Pro Thr Asp Ala Pro Pro Lys
            195             200             205

Val Leu Thr Lys Cys Gln Glu Glu Val Ser His Ile Pro Ala Val His
    210             215             220

Pro Gly Ser Phe Arg Pro Lys Cys Asp Glu Asn Gly Asn Tyr Leu Pro
225             230             235             240

Leu Gln Cys Tyr Gly Ser Ile Gly Tyr Cys Trp Cys Val Phe Pro Asn
            245             250             255

Gly Thr Glu Val Pro Asn Thr Arg Ser Arg Gly His His Asn Cys Ser
            260             265             270

Glu Ser Leu Glu Leu Glu Asp Pro Ser Ser Gly Leu Gly Val Thr Lys
        275             280             285

Gln Asp Leu Gly Pro Val Pro Met
        290             295
```

<210>   134
<211>   163
<212>   PRT
<213>   Homo sapiens

<300>
<308>   Swissprot/Q99969
<309>   2000-05-30
<313>   (1)..(163)

<400>   134

```
Met Arg Arg Leu Leu Ile Pro Leu Ala Leu Trp Leu Gly Ala Val Gly
1               5               10              15

Val Gly Val Ala Glu Leu Thr Glu Ala Gln Arg Arg Gly Leu Gln Val
```

```
                    20                      25                          30

         Ala Leu Glu Glu Phe His Lys His Pro Pro Val Gln Trp Ala Phe Gln
  5              35              40                  45


         Glu Thr Ser Val Glu Ser Ala Val Asp Thr Pro Phe Pro Ala Gly Ile
                 50              55                  60
 10


         Phe Val Arg Leu Glu Phe Lys Leu Gln Gln Thr Ser Cys Arg Lys Arg.
         65              70                  75                      80

 15
         Asp Trp Lys Lys Pro Glu Cys Lys Val Arg Pro Asn Gly Arg Lys Arg
                         85                  90                  95

 20      Lys Cys Leu Ala Cys Ile Lys Leu Gly Ser Glu Asp Lys Val Leu Gly
                     100             105                 110


         Arg Leu Val His Cys Pro Ile Glu Thr Gln Val Leu Arg Glu Ala Glu
 25                  115             120                 125


         Glu His Gln Glu Thr Gln Cys Leu Arg Val Gln Arg Ala Gly Glu Asp
                 130             135                 140
 30

         Pro His Ser Phe Tyr Phe Pro Gly Gln Phe Ala Phe Ser Lys Ala Leu
         145             150                 155                 160

 35
         Pro Arg Ser
```

 40   <210>   135
        <211>   2386
        <212>   PRT
        <213>   Homo sapiens

 45   <300>
        <308>   Swissprot/P02751
        <309>   1986-07-21
        <313>   (1)..(2386)

 50   <400>   135

```
         Met Leu Arg Gly Pro Gly Pro Gly Leu Leu Leu Leu Ala Val Gln Cys
         1               5                   10                  15

 55
         Leu Gly Thr Ala Val Pro Ser Thr Gly Ala Ser Lys Ser Lys Arg Gln
                     20                  25                  30


 60      Ala Gln Gln Met Val Gln Pro Gln Ser Pro Val Ala Val Ser Gln Ser .
                     35                  40                  45


         Lys Pro Gly Cys Tyr Asp Asn Gly Lys His Tyr Gln Ile Asn Gln Gln
 65              50                  55                  60


         Trp Glu Arg Thr Tyr Leu Gly Asn Ala Leu Val Cys Thr Cys Tyr Gly
         65                  70                  75                  80
 70
```

```
          Gly Ser Arg Gly Phe Asn Cys.Glu Ser Lys Pro Glu Ala Glu Glu Thr
                          85              90                      95

  5
          Cys Phe Asp Lys Tyr Thr Gly Asn Thr Tyr Arg Val Gly Asp Thr Tyr
                      100             105                 110

 10
          Glu Arg Pro Lys Asp Ser Met Ile Trp Asp Cys Thr Cys Ile Gly Ala
                  115                 120             125

 15
          Gly Arg Gly Arg Ile Ser Cys Thr Ile Ala Asn Arg Cys His Glu Gly
              130                 135                 140

 20
          Gly Gln Ser Tyr Lys Ile Gly Asp Thr Trp Arg Arg Pro His Glu Thr
          145                 150                 155                 160

          Gly Gly Tyr Met Leu Glu Cys Val Cys Leu Gly Asn Gly Lys Gly Glu
                          165                 170                 175

 25
          Trp Thr Cys Lys Pro Ile Ala Glu Lys Cys Phe Asp His Ala Ala Gly
                      180                 185                 190

 30 .
          Thr Ser Tyr Val Val Gly Glu Thr Trp Glu Lys Pro Tyr Gln Gly Trp
                  195                 200                 205

 35
          Met Met Val Asp Cys Thr Cys Leu Gly Glu Gly Ser Gly Arg Ile Thr
              210                 215                 220

 40
          Cys Thr Ser Arg Asn Arg Cys Asn Asp Gln Asp Thr Arg Thr Ser Tyr
          225                 230                 235                 240

 45
          Arg Ile Gly Asp Thr Trp Ser Lys Lys Asp Asn Arg Gly Asn Leu Leu
                          245                 250                 255

          Gln Cys Ile Cys Thr Gly Asn Gly Arg Gly Glu Trp Lys Cys Glu Arg
                      260                 265                 270

 50
          His Thr Ser Val Gln Thr Thr Ser Ser Gly Ser Gly Pro Phe Thr Asp
                      275                 280                 285

 55
          Val Arg Ala Ala Val Tyr Gln Pro Gln Pro His Pro Gln Pro Pro Pro
              290                 295                 300

 60
          Tyr Gly His Cys Val Thr Asp Ser Gly Val Val Tyr Ser Val Gly Met
          305                 310                 315                 320

          Gln Trp Leu Lys Thr Gln Gly Asn Lys Gln Met Leu Cys Thr Cys Leu
                          325                 330                 335

 65
          Gly Asn Gly Val Ser Cys Gln Glu Thr Ala Val Thr Gln Thr Tyr Gly
                      340                 345                 350

 70
          Gly Asn Ser Asn Gly Glu Pro Cys Val Leu Pro Phe Thr Tyr Asn Gly
```

355   360   365

5   Arg Thr Phe Tyr Ser Cys Thr Thr Glu Gly Arg Gln Asp Gly His Leu
          370   375   380

10   Trp Cys Ser Thr Thr Ser Asn Tyr Glu Gln Asp Gln Lys Tyr Ser Phe
     385   390   395   400

       Cys Thr Asp His Thr Val Leu Val Gln Thr Gln Gly Gly Asn Ser Asn
                   405   410   415

15   Gly Ala Leu Cys His Phe Pro Phe Leu Tyr Asn Asn His Asn Tyr Thr
               420   425   430

20   Asp Cys Thr Ser Glu Gly Arg Arg Asp Asn Met Lys Trp Cys Gly Thr
              435   440   445

25   Thr Gln Asn Tyr Asp Ala Asp Gln Lys Phe Gly Phe Cys Pro Met Ala
          450   455   460

30   Ala His Glu Glu Ile Cys Thr Thr Asn Glu Gly Val Met Tyr Arg Ile
     465   470   475   480

       Gly Asp Gln Trp Asp Lys Gln His Asp Met Gly His Met Met Arg Cys
                   485   490   495

35   Thr Cys Val Gly Asn Gly Arg Gly Glu Trp Thr Cys Ile Ala Tyr Ser
               500   505   510

40   Gln Leu Arg Asp Gln Cys Ile Val Asp Asp Ile Thr Tyr Asn Val Asn
              515   520   525

45   Asp Thr Phe His Lys Arg His Glu Glu Gly His Met Leu Asn Cys Thr
          530   535   540

50   Cys Phe Gly Gln Gly Arg Gly Arg Trp Lys Cys Asp Pro Val Asp Gln
     545   550   555   560

       Cys Gln Asp Ser Glu Thr Gly Thr Phe Tyr Gln Ile Gly Asp Ser Trp
                   565   570   575

55   Glu Lys Tyr Val His Gly Val Arg Tyr Gln Cys Tyr Cys Tyr Gly Arg
              580   585   590

60   Gly Ile Gly Glu Trp His Cys Gln Pro Leu Gln Thr Tyr Pro Ser Ser
              595   600   605

65   Ser Gly Pro Val Glu Val Phe Ile Thr Glu Thr Pro Ser Gln Pro Asn
          610   615   620

70   Ser His Pro Ile Gln Trp Asn Ala Pro Gln Pro Ser His Ile Ser Lys
          625   630   635   640

```
        Tyr Ile Leu Arg Trp Arg Pro Lys Asn Ser Val Gly Arg Trp Lys Glu
                        645             650                 655
 5
        Ala Thr Ile Pro Gly His Leu Asn Ser Tyr Thr Ile Lys Gly Leu Lys
                        660             665                 670
10
        Pro Gly Val Val Tyr Glu Gly Gln Leu Ile Ser Ile Gln Gln Tyr Gly
                        675             680             685
15
        His Gln Glu Val Thr Arg Phe Asp Phe Thr Thr Thr Ser Thr Ser Thr
                690             695             700
        Pro Val Thr Ser Asn Thr Val Thr Gly Glu Thr Thr Pro Phe Ser Pro
        705             710             715             720
20
        Leu Val Ala Thr Ser Glu Ser Val Thr Glu Ile Thr Ala Ser Ser Phe
                        725             730             735
25
        Val Val Ser Trp Val Ser Ala Ser Asp Thr Val Ser Gly Phe Arg Val
                        740             745             750
30
        Glu Tyr Glu Leu Ser Glu Glu Gly Asp Glu Pro Gln Tyr Leu Asp Leu
                755             760             765
35
        Pro Ser Thr Ala Thr Ser Val Asn Ile Pro Asp Leu Leu Pro Gly Arg
                770             775             780
        Lys Tyr Ile Val Asn Val Tyr Gln Ile Ser Glu Asp Gly Glu Gln Ser
        785             790             795             800
40
        Leu Ile Leu Ser Thr Ser Gln Thr Thr Ala Pro Asp Ala Pro Pro Asp
                        805             810             815
45
        Pro Thr Val Asp Gln Val Asp Asp Thr Ser Ile Val Val Arg Trp Ser
                        820             825             830
50
        Arg Pro Gln Ala Pro Ile Thr Gly Tyr Arg Ile Val Tyr Ser Pro Ser
                835             840             845
55
        Val Glu Gly Ser Ser Thr Glu Leu Asn Leu Pro Glu Thr Ala Asn Ser
                850             855             860
        Val Thr Leu Ser Asp Leu Gln Pro Gly Val Gln Tyr Asn Ile Thr Ile
        865             870             875             880
60
        Tyr Ala Val Glu Glu Asn Gln Glu Ser Thr Pro Val Val Ile Gln Gln
                        885             890             895
65
        Glu Thr Thr Gly Thr Pro Arg Ser Asp Thr Val Pro Ser Pro Arg Asp
                900             905             910
70
        Leu Gln Phe Val Glu Val Thr Asp Val Lys Val Thr Ile Met Trp Thr
```

915   920   925

Pro Pro Glu Ser Ala Val Thr Gly Tyr Arg Val Asp Val Ile Pro Val
    930   935   940

Asn Leu Pro Gly Glu His Gly Gln Arg Leu Pro Ile Ser Arg Asn Thr
945   950   955   960

Phe Ala Glu Val Thr Gly Leu Ser Pro Gly Val Thr Tyr Tyr Phe Lys
              965   970   975

Val Phe Ala Val Ser His Gly Arg Glu Ser Lys Pro Leu Thr Ala Gln
              980   985   990

Gln Thr Thr Lys Leu Asp Ala Pro Thr Asn Leu Gln Phe Val Asn Glu
            995   1000   1005

Thr Asp Ser Thr Val Leu Val Arg Trp Thr Pro Pro Arg Ala Gln
    1010   1015   1020

Ile Thr Gly Tyr Arg Leu Thr Val Gly Leu Thr Arg Arg Gly Gln
    1025   1030   1035

Pro Arg Gln Tyr Asn Val Gly Pro Ser Val Ser Lys Tyr Pro Leu
    1040   1045   1050

Arg Asn Leu Gln Pro Ala Ser Glu Tyr Thr Val Ser Leu Val Ala
    1055   1060   1065

Ile Lys Gly Asn Gln Glu Ser Pro Lys Ala Thr Gly Val Phe Thr
    1070   1075   1080

Thr Leu Gln Pro Gly Ser Ser Ile Pro Pro Tyr Asn Thr Glu Val
    1085   1090   1095

Thr Glu Thr Thr Ile Val Ile Thr Trp Thr Pro Ala Pro Arg Ile
    1100   1105   1110

Gly Phe Lys Leu Gly Val Arg Pro Ser Gln Gly Gly Glu Ala Pro
    1115   1120   1125

Arg Glu Val Thr Ser Asp Ser Gly Ser Ile Val Val Ser Gly Leu
    1130   1135   1140

Thr Pro Gly Val Glu Tyr Val Tyr Thr Ile Gln Val Leu Arg Asp
    1145   1150   1155

Gly Gln Glu Arg Asp Ala Pro Ile Val Asn Lys Val Val Thr Pro
    1160   1165   1170

Leu Ser Pro Pro Thr Asn Leu His Leu Glu Ala Asn Pro Asp Thr
    1175   1180   1185

```
         Gly Val Leu Thr Val Ser Trp Glu Arg Ser Thr Thr Pro Asp Ile
             1190                1195                1200
  5

         Thr Gly Tyr Arg Ile Thr Thr Thr Pro Thr Asn Gly Gln Gln Gly
             1205                1210                1215

 10      Asn Ser Leu Glu Glu Val Val His Ala Asp Gln Ser Ser Cys Thr
             1220                1225                1230

 15      Phe Asp Asn Leu Ser Pro Gly Leu Glu Tyr Asn Val Ser Val Tyr
             1235                1240                1245

 20      Thr Val Lys Asp Asp Lys Glu Ser Val Pro Ile Ser Asp Thr Ile
             1250                1255                1260

 25      Ile Pro Ala Val Pro Pro Pro Thr Asp Leu Arg Phe Thr Asn Ile
             1265                1270                1275

 30      Gly Pro Asp Thr Met Arg Val Thr Trp Ala Pro Pro Pro Ser Ile
             1280                1285                1290

         Asp Leu Thr Asn Phe Leu Val Arg Tyr Ser Pro Val Lys Asn Glu
             1295                1300                1305

 35      Glu Asp Val Ala Glu Leu Ser Ile Ser Pro Ser Asp Asn Ala Val
             1310                1315                1320

 40      Val Leu Thr Asn Leu Leu Pro Gly Thr Glu Tyr Val Val Ser Val
             1325                1330                1335

 45      Ser Ser Val Tyr Glu Gln His Glu Ser Thr Pro Leu Arg Gly Arg
             1340                1345                1350

         Gln Lys Thr Gly Leu Asp Ser Pro Thr Gly Ile Asp Phe Ser Asp
             1355                1360                1365

 50      Ile Thr Ala Asn Ser Phe Thr Val His Trp Ile Ala Pro Arg Ala
             1370                1375                1380

 55      Thr Ile Thr Gly Tyr Arg Ile Arg His His Pro Glu His Phe Ser
             1385                1390                1395

 60      Gly Arg Pro Arg Glu Asp Arg Val Pro His Ser Arg Asn Ser Ile
             1400                1405                1410

         Thr Leu Thr Asn Leu Thr Pro Gly Thr Glu Tyr Val Val Ser Ile
             1415                1420                1425

 65      Val Ala Leu Asn Gly Arg Glu Glu Ser Pro Leu Leu Ile Gly Gln
             1430                1435                1440

 70      Gln Ser Thr Val Ser Asp Val Pro Arg Asp Leu Glu Val Val Ala
```

1445   1450   1455

5   Ala Thr Pro Thr Ser Leu Leu Ile Ser Trp Asp Ala Pro Ala Val
             1460   1465   1470

         Thr Val Arg Tyr Tyr Arg Ile Thr Tyr Gly Glu Thr Gly Gly Asn
             1475   1480   1485
10

         Ser Pro Val Gln Glu Phe Thr Val Pro Gly Ser Lys Ser Thr Ala
             1490   1495   1500

15   Thr Ile Ser Gly Leu Lys Pro Gly Val Asp Tyr Thr Ile Thr Val
             1505   1510   1515

20   Tyr Ala Val Thr Gly Arg Gly Asp Ser Pro Ala Ser Ser Lys Pro
             1520   1525   1530

25   Ile Ser Ile Asn Tyr Arg Thr Glu Ile Asp Lys Pro Ser Gln Met
             1535   1540   1545

         Gln Val Thr Asp Val Gln Asp Asn Ser Ile Ser Val Lys Trp Leu
             1550   1555   1560
30

         Pro Ser Ser Ser Pro Val Thr Gly Tyr Arg Val Thr Thr Thr Pro
             1565   1570   1575
35

         Lys Asn Gly Pro Gly Pro Thr Lys Thr Lys Thr Ala Gly Pro Asp
             1580   1585   1590

40   Gln Thr Glu Met Thr Ile Glu Gly Leu Gln Pro Thr Val Glu Tyr
             1595   1600   1605

45   Val Val Ser Val Tyr Ala Gln Asn Pro Ser Gly Glu Ser Gln Pro
             1610   1615   1620

         Leu Val Gln Thr Ala Val Thr Asn Ile Asp Arg Pro Lys Gly Leu
             1625   1630   1635
50

         Ala Phe Thr Asp Val Asp Val Asp Ser Ile Lys Ile Ala Trp Glu
             1640   1645   1650
55

         Ser Pro Gln Gly Gln Val Ser Arg Tyr Arg Val Thr Tyr Ser Ser
             1655   1660   1665

60   Pro Glu Asp Gly Ile His Glu Leu Phe Pro Ala Pro Asp Gly Glu
             1670   1675   1680

         Glu Asp Thr Ala Glu Leu Gln Gly Leu Arg Pro Gly Ser Glu Tyr
             1685   1690   1695
65

         Thr Val Ser Val Val Ala Leu His Asp Asp Met Glu Ser Gln Pro
             1700   1705   1710
70

```
        Leu Ile Gly Thr Gln Ser Thr  Ala Ile Pro Ala Pro  Thr Asp Leu
            1715              1720            1725

 5
        Lys Phe Thr Gln Val Thr Pro  Thr Ser Leu Ser Ala  Gln Trp Thr
            1730              1735            1740

10      Pro Pro Asn Val Gln Leu Thr  Gly Tyr Arg Val Arg  Val Thr Pro
            1745              1750            1755

15      Lys Glu Lys Thr Gly Pro Met  Lys Glu Ile Asn Leu  Ala Pro Asp
            1760              1765            1770

        Ser Ser Ser Val Val Val Ser  Gly Leu Met Val Ala  Thr Lys Tyr
            1775              1780            1785

20      Glu Val Ser Val Tyr Ala Leu  Lys Asp Thr Leu Thr  Ser Arg Pro
            1790              1795            1800

25      Ala Gln Gly Val Val Thr Thr  Leu Glu Asn Val Ser  Pro Pro Arg
            1805              1810            1815

30      Arg Ala Arg Val Thr Asp Ala  Thr Glu Thr Thr Ile  Thr Ile Ser
            1820              1825            1830

35      Trp Arg Thr Lys Thr Glu Thr  Ile Thr Gly Phe Gln  Val Asp Ala
            1835              1840            1845

        Val Pro Ala Asn Gly Gln Thr  Pro Ile Gln Arg Thr  Ile Lys Pro
            1850              1855            1860

40      Asp Val Arg Ser Tyr Thr Ile  Thr Gly Leu Gln Pro  Gly Thr Asp
            1865              1870            1875

45      Tyr Lys Ile Tyr Leu Tyr Thr  Leu Asn Asp Asn Ala  Arg Ser Ser
            1880              1885            1890

50      Pro Val Val Ile Asp Ala Ser  Thr Ala Ile Asp Ala  Pro Ser Asn
            1895              1900            1905

55      Leu Arg Phe Leu Ala Thr Thr  Pro Asn Ser Leu Leu  Val Ser Trp
            1910              1915            1920

        Gln Pro Pro Arg Ala Arg Ile  Thr Gly Tyr Ile Ile  Lys Tyr Glu
            1925              1930            1935

60      Lys Pro Gly Ser Pro Pro Arg  Glu Val Val Pro Arg  Pro Arg Pro
            1940              1945            1950

65      Gly Val Thr Glu Ala Thr Ile  Thr Gly Leu Glu Pro  Gly Thr Glu
            1955              1960            1965

70      Tyr Thr Ile Tyr Val Ile Ala  Leu Lys Asn Asn Gln  Lys Ser Glu
```

                      1970   1975   1980

5   Pro Leu Ile Gly Arg Lys Lys Thr Asp Glu Leu Pro Gln Leu Val
                  1985   1990   1995

          Thr Leu Pro His Pro Asn Leu His Gly Pro Glu Ile Leu Asp Val
                  2000   2005   2010
10

          Pro Ser Thr Val Gln Lys Thr Pro Phe Val Thr His Pro Gly Tyr
                  2015   2020   2025

15
          Asp Thr Gly Asn Gly Ile Gln Leu Pro Gly Thr Ser Gly Gln Gln
                  2030   2035   2040

20   Pro Ser Val Gly Gln Gln Met Ile Phe Glu Glu His Gly Phe Arg
                  2045   2050   2055

          Arg Thr Thr Pro Pro Thr Thr Ala Thr Pro Ile Arg His Arg Pro
25   2060   2065   2070

          Arg Pro Tyr Pro Pro Asn Val Gly Glu Glu Ile Gln Ile Gly His
                  2075   2080   2085
30

          Ile Pro Arg Glu Asp Val Asp Tyr His Leu Tyr Pro His Gly Pro
                  2090   2095   2100

35
          Gly Leu Asn Pro Asn Ala Ser Thr Gly Gln Glu Ala Leu Ser Gln
                  2105   2110   2115

40   Thr Thr Ile Ser Trp Ala Pro Phe Gln Asp Thr Ser Glu Tyr Ile
                  2120   2125   2130

          Ile Ser Cys His Pro Val Gly Thr Asp Glu Glu Pro Leu Gln Phe
45   2135   2140   2145

          Arg Val Pro Gly Thr Ser Thr Ser Ala Thr Leu Thr Gly Leu Thr
                  2150   2155   2160
50

          Arg Gly Ala Thr Tyr Asn Ile Ile Val Glu Ala Leu Lys Asp Gln
                  2165   2170   2175

55
          Gln Arg His Lys Val Arg Glu Glu Val Val Thr Val Gly Asn Ser
                  2180   2185   2190

60   Val Asn Glu Gly Leu Asn Gln Pro Thr Asp Asp Ser Cys Phe Asp
                  2195   2200   2205

          Pro Tyr Thr Val Ser His Tyr Ala Val Gly Asp Glu Trp Glu Arg
65   2210   2215   2220

          Met Ser Glu Ser Gly Phe Lys Leu Leu Cys Gln Cys Leu Gly Phe
                  2225   2230   2235
70

Gly Ser Gly His Phe Arg Cys Asp Ser Ser Arg Trp Cys His Asp
    2240   2245   2250

Asn Gly Val Asn Tyr Lys Ile Gly Glu Lys Trp Asp Arg Gln Gly
    2255   2260   2265

Glu Asn Gly Gln Met Met Ser Cys Thr Cys Leu Gly Asn Gly Lys
    2270   2275   2280

Gly Glu Phe Lys Cys Asp Pro His Glu Ala Thr Cys Tyr Asp Asp
    2285   2290   2295

Gly Lys Thr Tyr His Val Gly Glu Gln Trp Gln Lys Glu Tyr Leu
    2300   2305   2310

Gly Ala Ile Cys Ser Cys Thr Cys Phe Gly Gly Gln Arg Gly Trp
    2315   2320   2325

Arg Cys Asp Asn Cys Arg Arg Pro Gly Gly Glu Pro Ser Pro Glu
    2330   2335   2340

Gly Thr Thr Gly Gln Ser Tyr Asn Gln Tyr Ser Gln Arg Tyr His
    2345   2350   2355

Gln Arg Thr Asn Thr Asn Val Asn Cys Pro Ile Glu Cys Phe Met
    2360   2365   2370

Pro Leu Asp Val Gln Ala Asp Arg Glu Asp Ser Arg Glu
    2375   2380   2385

<210> 136
<211> 339
<212> PRT
<213> Homo sapiens

<300>
<308> Swissprot/P07858
<309> 1988-08-01
<313> (1)..(339)

<400> 136

Met Trp Gln Leu Trp Ala Ser Leu Cys Cys Leu Leu Val Leu Ala Asn
1   5   10   15

Ala Arg Ser Arg Pro Ser Phe His Pro Val Ser Asp Glu Leu Val Asn
            20   25   30

Tyr Val Asn Lys Arg Asn Thr Thr Trp Gln Ala Gly His Asn Phe Tyr
            35   40   45

Asn Val Asp Met Ser Tyr Leu Lys Arg Leu Cys Gly Thr Phe Leu Gly
            50   55   60

Gly Pro Lys Pro Pro Gln Arg Val Met Phe Thr Glu Asp Leu Lys Leu

	65				70				75				80

5   Pro Ala Ser Phe Asp Ala Arg Glu Gln Trp Pro Gln Cys Pro Thr Ile
                  85   90   95

10   Lys Glu Ile Arg Asp Gln Gly Ser Cys Gly Ser Cys Trp Ala Phe Gly
             100   105   110

Ala Val Glu Ala Ile Ser Asp Arg Ile Cys Ile His Thr Asn Ala His
    115   120   125

15 Val Ser Val Glu Val Ser Ala Glu Asp Leu Leu Thr Cys Cys Gly Ser
      130   135   140

20 Met Cys Gly Asp Gly Cys Asn Gly Gly Tyr Pro Ala Glu Ala Trp Asn
145   150   155   160

25 Phe Trp Thr Arg Lys Gly Leu Val Ser Gly Leu Tyr Glu Ser His
        165   170   175

Val Gly Cys Arg Pro Tyr Ser Ile Pro Pro Cys Glu His His Val Asn
     180   185   190

30 Gly Ser Arg Pro Pro Cys Thr Gly Glu Gly Asp Thr Pro Lys Cys Ser
     195   200   205

35 Lys Ile Cys Glu Pro Gly Tyr Ser Pro Thr Tyr Lys Gln Asp Lys His
210   215   220

40 Tyr Gly Tyr Asn Ser Tyr Ser Val Ser Asn Ser Glu Lys Asp Ile Met
225   230   235   240

45 Ala Glu Ile Tyr Lys Asn Gly Pro Val Glu Gly Ala Phe Ser Val Tyr
        245   250   255

50 Ser Asp Phe Leu Leu Tyr Lys Ser Gly Val Tyr Gln His Val Thr Gly
        260   265   270

Glu Met Met Gly Gly His Ala Ile Arg Ile Leu Gly Trp Gly Val Glu
     275   280   285

55 Asn Gly Thr Pro Tyr Trp Leu Val Ala Asn Ser Trp Asn Thr Asp Trp
    290   295   300

60 Gly Asp Asn Gly Phe Phe Lys Ile Leu Arg Gly Gln Asp His Cys Gly
305   310   315   320

65 Ile Glu Ser Glu Val Val Ala Gly Ile Pro Arg Thr Asp Gln Tyr Trp
        325   330   335

70 Glu Lys Ile

```
<210>  137
<211>  1249
<212>  PRT
<213>  Homo sapiens

<300>
<308>  Swissprot/P29144
<309>  1992-12-01
<313>  (1)..(1249)

<400>  137

Met Ala Thr Ala Ala Thr Glu Glu Pro Phe Pro Phe His Gly Leu Leu
1               5                   10                  15


Pro Lys Lys Glu Thr Gly Ala Ala Ser Phe Leu Cys Arg Tyr Pro Glu
                20                  25                  30


Tyr Asp Gly Arg Gly Val Leu Ile Ala Val Leu Asp Thr Gly Val Asp
        35                  40                  45


Pro Gly Ala Pro Gly Met Gln Val Thr Thr Asp Gly Lys Pro Lys Ile
    50                  55                  60


Val Asp Ile Ile Asp Thr Thr Gly Ser Gly Asp Val Asn Thr Ala Thr
65                  70                  75                  80


Glu Val Glu Pro Lys Asp Gly Glu Ile Val Gly Leu Ser Gly Arg Val
                85                  90                  95


Leu Lys Ile Pro Ala Ser Trp Thr Asn Pro Ser Gly Lys Tyr His Ile
                100                 105                 110


Gly Ile Lys Asn Gly Tyr Asp Phe Tyr Pro Lys Ala Leu Lys Glu Arg
            115                 120                 125


Ile Gln Lys Glu Arg Lys Glu Lys Ile Trp Asp Pro Val His Arg Val
    130                 135                 140


Ala Leu Ala Glu Ala Cys Arg Lys Gln Glu Glu Phe Asp Val Ala Asn
145                 150                 155                 160


Asn Gly Ser Ser Gln Ala Asn Lys Leu Ile Lys Glu Glu Leu Gln Ser
                165                 170                 175


Gln Val Glu Leu Leu Asn Ser Phe Glu Lys Lys Tyr Ser Asp Pro Gly
                180                 185                 190


Pro Val Tyr Asp Cys Leu Val Trp His Asp Gly Glu Val Trp Arg Ala
            195                 200                 205


Cys Ile Asp Ser Asn Glu Asp Gly Asp Leu Ser Lys Ser Thr Val Leu
    210                 215                 220


Arg Asn Tyr Lys Glu Ala Gln Glu Tyr Gly Ser Phe Gly Thr Ala Glu
```

	225				230				235				240

5
Met Leu Asn Tyr Ser Val Asn Ile Tyr Asp Asp Gly Asn Leu Leu Ser
245 250 255

10
Ile Val Thr Ser Gly Gly Ala His Gly Thr His Val Ala Ser Ile Ala
260 265 270

15
Ala Gly His Phe Pro Glu Glu Pro Glu Arg Asn Gly Val Ala Pro Gly
275 280 285

Ala Gln Ile Leu Ser Ile Lys Ile Gly Asp Thr Arg Leu Ser Thr Met
290 295 300

20
Glu Thr Gly Thr Gly Leu Ile Arg Ala Met Ile Glu Val Ile Asn His
305 310 315 320

25
Lys Cys Asp Leu Val Asn Tyr Ser Tyr Gly Glu Ala Thr His Trp Pro
325 330 335

30
Asn Ser Gly Arg Ile Cys Glu Val Ile Asn Glu Ala Val Trp Lys His
340 345 350

Asn Ile Ile Tyr Val Ser Ser Ala Gly Asn Asn Gly Pro Cys Leu Ser
355 360 365

35
Thr Val Gly Cys Pro Gly Gly Thr Thr Ser Ser Val Ile Gly Val Gly
370 375 380

40
Ala Tyr Val Ser Pro Asp Met Met Val Ala Glu Tyr Ser Leu Arg Glu
385 390 395 400

45
Lys Leu Pro Ala Asn Gln Tyr Thr Trp Ser Ser Arg Gly Pro Ser Ala
405 410 415

Asp Gly Ala Leu Gly Val Ser Ile Ser Ala Pro Gly Gly Ala Ile Ala
420 425 430

50
Ser Val Pro Asn Trp Thr Leu Arg Gly Thr Gln Leu Met Asn Gly Thr
435 440 445

55
Ser Met Ser Ser Pro Asn Ala Cys Gly Gly Ile Ala Leu Ile Leu Ser
450 455 460

60
Gly Leu Lys Ala Asn Asn Ile Asp Tyr Thr Val His Ser Val Arg Arg
465 470 475 480

65
Ala Leu Glu Asn Thr Ala Val Lys Ala Asp Asn Ile Glu Val Phe Ala
485 490 495

Gln Gly His Gly Ile Ile Gln Val Asp Lys Ala Tyr Asp Tyr Leu Val
500 505 510

70

```
      Gln Asn Thr Ser Phe Ala Asn Lys Leu Gly Phe Thr Val Thr Val Gly
              515                 520                 525

5
      Asn Asn Arg Gly Ile Tyr Leu Arg Asp Pro Val Gln Val Ala Ala Pro
              530                 535                 540

10
      Ser Asp His Gly Val Gly Ile Glu Pro Val Phe Pro Glu Asn Thr Glu
      545                 550                 555                 560

15
      Asn Ser Glu Lys Ile Ser Leu Gln Leu His Leu Ala Leu Thr Ser Asn
                      565                 570                 575

      Ser Ser Trp Val Gln Cys Pro Ser His Leu Glu Leu Met Asn Gln Cys
                  580                 585                 590
20
      Arg His Ile Asn Ile Arg Val Asp Pro Arg Gly Leu Arg Glu Gly Leu
              595                 600                 605

25
      His Tyr Thr Glu Val Cys Gly Tyr Asp Ile Ala Ser Pro Asn Ala Gly
          610                 615                 620

30
      Pro Leu Phe Arg Val Pro Ile Thr Ala Val Ile Ala Ala Lys Val Asn
      625                 630                 635                 640

35
      Glu Ser Ser His Tyr Asp Leu Ala Phe Thr Asp Val His Phe Lys Pro
                      645                 650                 655

      Gly Gln Ile Arg Arg His Phe Ile Glu Val Pro Glu Gly Ala Thr Trp
                  660                 665                 670
40
      Ala Glu Val Thr Val Cys Ser Cys Ser Ser Glu Val Ser Ala Lys Phe
                  675                 680                 685

45
      Val Leu His Ala Val Gln Leu Val Lys Gln Arg Ala Tyr Arg Ser His
          690                 695                 700

50
      Glu Phe Tyr Lys Phe Cys Ser Leu Pro Glu Lys Gly Thr Leu Thr Glu
      705                 710                 715                 720

55
      Ala Phe Pro Val Leu Gly Gly Lys Ala Ile Glu Phe Cys Ile Ala Arg
                      725                 730                 735

      Trp Trp Ala Ser Leu Ser Asp Val Asn Ile Asp Tyr Thr Ile Ser Phe
                  740                 745                 750
60
      His Gly Ile Val Cys Thr Ala Pro Gln Leu Asn Ile His Ala Ser Glu
                  755                 760                 765

65
      Gly Ile Asn Arg Phe Asp Val Gln Ser Ser Leu Lys Tyr Glu Asp Leu
          770                 775                 780

70
      Ala Pro Cys Ile Thr Leu Lys Asn Trp Val Gln Thr Leu Arg Pro Val
```

	785			790			795			800

5
Ser Ala Lys Thr Lys Pro Leu Gly Ser Arg Asp Val Leu Pro Asn Asn
                    805   810   815

10
Arg Gln Leu Tyr Glu Met Val Leu Thr Tyr Asn Phe His Gln Pro Lys
                820   825   830

Ser Gly Glu Val Thr Pro Ser Cys Pro Leu Leu Cys Glu Leu Leu Tyr
            835   840   845

15
Glu Ser Glu Phe Asp Ser Gln Leu Trp Ile Ile Phe Asp Gln Asn Lys
    850   855   860

20
Arg Gln Met Gly Ser Gly Asp Ala Tyr Pro His Gln Tyr Ser Leu Lys
865   870   875   880

Leu Glu Lys Gly Asp Tyr Thr Ile Arg Leu Gln Ile Arg His Glu Gln
25   885   890   895

Ile Ser Asp Leu Glu Arg Leu Lys Asp Leu Pro Phe Ile Val Ser His
            900   905   910

30
Arg Leu Ser Asn Thr Leu Ser Leu Asp Ile His Glu Asn His Ser Phe
            915   920   925

35
Ala Leu Leu Gly Lys Lys Lys Ser Ser Asn Leu Thr Leu Pro Pro Lys
    930   935   940

40
Tyr Asn Gln Pro Phe Phe Val Thr Ser Leu Pro Asp Asp Lys Ile Pro
945   950   955   960

Lys Gly Ala Gly Pro Gly Cys Tyr Leu Ala Gly Ser Leu Thr Leu Ser
45   965   970   975

Lys Thr Glu Leu Gly Lys Lys Ala Asp Val Ile Pro Val His Tyr Tyr
            980   985   990

50
Leu Ile Pro Pro Pro Thr Lys Thr Lys Asn Gly Ser Lys Asp Lys Glu
            995   1000   1005

55
Lys Asp Ser Glu Lys Glu Lys Asp Leu Lys Glu Glu Phe Thr Glu
    1010   1015   1020

60
Ala Leu Arg Asp Leu Lys Ile Gln Trp Met Thr Lys Leu Asp Ser
    1025   1030   1035

65
Ser Asp Ile Tyr Asn Glu Leu Lys Glu Thr Tyr Pro Asn Tyr Leu
    1040   1045   1050

Pro Leu Tyr Val Ala Arg Leu His Gln Leu Asp Ala Glu Lys Glu
    1055   1060   1065

70

```
        Arg Met Lys Arg Leu Asn Glu Ile Val Asp Ala Ala Asn Ala Val
            1070                1075            1080

        Ile Ser His Ile Asp Gln Thr Ala Leu Ala Val Tyr Ile Ala Met
            1085                1090            1095

        Lys Thr Asp Pro Arg Pro Asp Ala Ala Thr Ile Lys Asn Asp Met
            1100                1105            1110

        Asp Lys Gln Lys Ser Thr Leu Val Asp Ala Leu Cys Arg Lys Gly
            1115                1120            1125

        Cys Ala Leu Ala Asp His Leu Leu His Thr Gln Ala Gln Asp Gly
            1130                1135            1140

        Ala Ile Ser Thr Asp Ala Glu Gly Lys Glu Glu Glu Gly Glu Ser
            1145                1150            1155

        Pro Leu Asp Ser Leu Ala Glu Thr Phe Trp Glu Thr Thr Lys Trp
            1160                1165            1170

        Thr Asp Leu Phe Asp Asn Lys Val Leu Thr Phe Ala Tyr Lys His
            1175                1180            1185

        Ala Leu Val Asn Lys Met Tyr Gly Arg Gly Leu Lys Phe Ala Thr
            1190                1195            1200

        Lys Leu Val Glu Glu Lys Pro Thr Lys Glu Asn Trp Lys Asn Cys
            1205                1210            1215

        Ile Gln Leu Met Lys Leu Leu Gly Trp Thr His Cys Ala Ser Phe
            1220                1225            1230

        Thr Glu Asn Trp Leu Pro Ile Met Tyr Pro Pro Asp Tyr Cys Val
            1235                1240            1245

        Phe
```

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        <210>   138
        <211>   433
        <212>   PRT
        <213>   Homo sapiens

        <300>
        <308>   Swissprot/Q99538
        <309>   1997-11-01
        <313>   (1)..(433)

        <400>   138

        Met Val Trp Lys Val Ala Val Phe Leu Ser Val Ala Leu Gly Ile Gly
        1               5               10              15

        Ala Val Pro Ile Asp Asp Pro Glu Asp Gly Gly Lys His Trp Val Val
```

	20	25	30

```
        Ile Val Ala Gly Ser Asn Gly Trp Tyr Asn Tyr Arg His Gln Ala Asp
5               35              40              45

        Ala Cys His Ala Tyr Gln Ile Ile His Arg Asn Gly Ile Pro Asp Glu
10              50              55              60

        Gln Ile Val Val Met Met Tyr Asp Asp Ile Ala Tyr Ser Glu Asp Asn
        65              70              75              80
15
        Pro Thr Pro Gly Ile Val Ile Asn Arg Pro Asn Gly Thr Asp Val Tyr
                        85              90              95

20      Gln Gly Val Pro Lys Asp Tyr Thr Gly Glu Asp Val Thr Pro Gln Asn
                        100             105             110

        Phe Leu Ala Val Leu Arg Gly Asp Ala Glu Ala Val Lys Gly Ile Gly
25                      115             120             125

        Ser Gly Lys Val Leu Lys Ser Gly Pro Gln Asp His Val Phe Ile Tyr
                130             135             140
30
        Phe Thr Asp His Gly Ser Thr Gly Ile Leu Val Phe Pro Asn Glu Asp
        145                     150             155             160
-35
        Leu His Val Lys Asp Leu Asn Glu Thr Ile His Tyr Met Tyr Lys His
                        165             170             175

40      Lys Met Tyr Arg Lys Met Val Phe Tyr Ile Glu Ala Cys Glu Ser Gly
                        180             185             190

        Ser Met Met Asn His Leu Pro Asp Asn Ile Asn Val Tyr Ala Thr Thr
45                      195             200             205

        Ala Ala Asn Pro Arg Glu Ser Ser Tyr Ala Cys Tyr Tyr Asp Glu Lys
        210                     215             220
50
        Arg Ser Thr Tyr Leu Gly Asp Trp Tyr Ser Val Asn Trp Met Glu Asp
        225                     230             235             240
55
        Ser Asp Val Glu Asp Leu Thr Lys Glu Thr Leu His Lys Gln Tyr His
                        245             250             255

60      Leu Val Lys Ser His Thr Asn Thr Ser His Val Met Gln Tyr Gly Asn
                        260             265             270

        Lys Thr Ile Ser Thr Met Lys Val Met Gln Phe Gln Gly Met Lys Arg
65                      275             280             285

        Lys Ala Ser Ser Pro Val Pro Leu Pro Pro Val Thr His Leu Asp Leu
70      290                     295             300
```

```
       Thr Pro Ser Pro Asp Val Pro Leu Thr Ile Met Lys Arg Lys Leu Met
       305             310             315             .           320

       Asn Thr Asn Asp Leu Glu Glu Ser Arg Gln Leu Thr Glu Glu Ile Gln
                       325             330             335

       Arg His Leu Asp Ala Arg His Leu Ile Glu Lys Ser Val Arg Lys Ile
                   340             345             350

       Val Ser Leu Leu Ala Ala Ser Glu Ala Glu Val Glu Gln Leu Leu Ser
               355             360             365

       Glu Arg Ala Pro Leu Thr Gly His Ser Cys Tyr Pro Glu Ala Leu Leu
           370             375             380

       His Phe Arg Thr His Cys Phe Asn Trp His Ser Pro Thr Tyr Glu Tyr
       385             390             395             400

       Ala Leu Arg His Leu Tyr Val Leu Val Asn Leu Cys Glu Lys Pro Tyr
                   405             410             415

       Pro Leu His Arg Ile Lys Leu Ser Met Asp His Val Cys Leu Gly His
                   420             425             430

       Tyr


       <210>  139
       <211>  342
       <212>  PRT
       <213>  Homo sapiens

       <300>
       <308>  Swissprot/P25105
       <309>  1992-05-01
       <313>  (1)..(342)

       <400>  139

       Met Glu Pro His Asp Ser Ser His Met Asp Ser Glu Phe Arg Tyr Thr
       1               5               10              15

       Leu Phe Pro Ile Val Tyr Ser Ile Ile Phe Val Leu Gly Val Ile Ala
                       20              25              30

       Asn Gly Tyr Val Leu Trp Val Phe Ala Arg Leu Tyr Pro Cys Lys Lys
                   35              40              45

       Phe Asn Glu Ile Lys Ile Phe Met Val Asn Leu Thr Met Ala Asp Met
               50              55              60

       Leu Phe Leu Ile Thr Leu Pro Leu Trp Ile Val Tyr Tyr Gln Asn Gln
       65              70              75              80

       Gly Asn Trp Ile Leu Pro Lys Phe Leu Cys Asn Val Ala Gly Cys Leu
```

85   90   95

5   Phe Phe Ile Asn Thr Tyr Cys Ser Val Ala Phe Leu Gly Val Ile Thr
                    100   105   110

        Tyr Asn Arg Phe Gln Ala Val Thr Arg Pro Ile Lys Thr Ala Gln Ala
10   115   120   125

        Asn Thr Arg Lys Arg Gly Ile Ser Leu Ser Leu Val Ile Trp Val Ala
                    130   135   140
15
        Ile Val Gly Ala Ala Ser Tyr Phe Leu Ile Leu Asp Ser Thr Asn Thr
        145   150   155   160

20   Val Pro Asp Ser Ala Gly Ser Gly Asn Val Thr Arg Cys Phe Glu His
                    165   170   175

        Tyr Glu Lys Gly Ser Val Pro Val Leu Ile Ile His Ile Phe Ile Val
25   180   185   190

        Phe Ser Phe Phe Leu Val Phe Leu Ile Ile Leu Phe Cys Asn Leu Val
                    195   200   205
30
        Ile Ile Arg Thr Leu Leu Met Gln Pro Val Gln Gln Gln Arg Asn Ala
        210   215   220

35   Glu Val Lys Arg Arg Ala Leu Trp Met Val Cys Thr Val Leu Ala Val
        225   230   235   240

40   Phe Ile Ile Cys Phe Val Pro His His Val Val Gln Leu Pro Trp Thr
                    245   250   255

        Leu Ala Glu Leu Gly Phe Gln Asp Ser Lys Phe His Gln Ala Ile Asn
45   260   265   270

        Asp Ala His Gln Val Thr Leu Cys Leu Leu Ser Thr Asn Cys Val Leu
                    275   280   285
50
        Asp Pro Val Ile Tyr Cys Phe Leu Thr Lys Lys Phe Arg Lys His Leu
            290   295   300

55   Thr Glu Lys Phe Tyr Ser Met Arg Ser Ser Arg Lys Cys Ser Arg Ala
        305   310   315   320

60   Thr Thr Asp Thr Val Thr Glu Val Val Val Pro Phe Asn Gln Ile Pro
                    325   330   335

        Gly Asn Ser Leu Lys Asn
65   340

        <210>   140
        <211>   359
70   <212>   PRT

<213>   Homo sapiens

<300>
<308>   Swissprot/Q92187
<309>   1997-11-01
<313>   (1)..(359)

<400>   140

Met Arg Ser Ile Arg Lys Arg Trp Thr Ile Cys Thr Ile Ser Leu Leu
1   5   10   15

Leu Ile Phe Tyr Lys Thr Lys Glu Ile Ala Arg Thr Glu Glu His Gln
            20   25   30

Glu Thr Gln Leu Ile Gly Asp Gly Glu Leu Ser Leu Ser Arg Ser Leu
        35   40   45

Val Asn Ser Ser Asp Lys Ile Ile Arg Lys Ala Gly Ser Ser Ile Phe
    50   55   60

Gln His Asn Val Glu Gly Trp Lys Ile Asn Ser Ser Leu Val Leu Glu
65   70   75   80

Ile Arg Lys Asn Ile Leu Arg Phe Leu Asp Ala Glu Arg Asp Val Ser
                85   90   95

Val Val Lys Ser Ser Phe Lys Pro Gly Asp Val Ile His Tyr Val Leu
            100   105   110

Asp Arg Arg Arg Thr Leu Asn Ile Ser His Asp Leu His Ser Leu Leu
            115   120   125

Pro Glu Val Ser Pro Met Lys Asn Arg Arg Phe Lys Thr Cys Ala Val
    130   135   140

Val Gly Asn Ser Gly Ile Leu Leu Asp Ser Glu Cys Gly Lys Glu Ile
145   150   155   160

Asp Ser His Asn Phe Val Ile Arg Cys Asn Leu Ala Pro Val Val Glu
                165   170   175

Phe Ala Ala Asp Val Gly Thr Lys Ser Asp Phe Ile Thr Met Asn Pro
            180   185   190

Ser Val Val Gln Arg Ala Phe Gly Gly Phe Arg Asn Glu Ser Asp Arg
            195   200   205

Glu Lys Phe Val His Arg Leu Ser Met Leu Asn Asp Ser Val Leu Trp
    210   215   220

Ile Pro Ala Phe Met Val Lys Gly Gly Glu Lys His Val Glu Trp Val
225   230   235   240

Asn Ala Leu Ile Leu Lys Asn Lys Leu Lys Val Arg Thr Ala Tyr Pro

```
                    245                  250                      255

        Ser Leu Arg Leu Ile His Ala Val Arg Gly Tyr Trp Leu Thr Asn Lys
                    260                  265                      270

        Val Pro Ile Lys Arg Pro Ser Thr Gly Leu Leu Met Tyr Thr Leu Ala
                    275                  280                      285

        Thr Arg Phe Cys Asp Glu Ile His Leu Tyr Gly Phe Trp Pro Phe Pro
                    290                  295                      300

        Lys Asp Leu Asn Gly Lys Ala Val Lys Tyr His Tyr Tyr Asp Asp Leu
        305                      310                  315              320

        Lys Tyr Arg Tyr Phe Ser Asn Ala Ser Pro His Arg Met Pro Leu Glu
                        325                  330                  335

        Phe Lys Thr Leu Asn Val Leu His Asn Arg Gly Ala Leu Lys Leu Thr
                        340                  345                  350

        Thr Gly Lys Cys Val Lys Gln
                        355
```

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<210>   141
<211>   218
<212>   PRT
<213>   Homo sapiens

<300>
<308>   Swissprot/Q15907
<309>   1998-07-15
<313>   (1)..(218)

<400>   141
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```
        Met Gly Thr Arg Asp Asp Glu Tyr Asp Tyr Leu Phe Lys Val Val Leu
        1                   5                   10                  15

        Ile Gly Asp Ser Gly Val Gly Lys Ser Asn Leu Leu Ser Arg Phe Thr
                        20                  25                  30

        Arg Asn Glu Phe Asn Leu Glu Ser Lys Ser Thr Ile Gly Val Glu Phe
                    35                  40                  45

        Ala Thr Arg Ser Ile Gln Val Asp Gly Lys Thr Ile Lys Ala Gln Ile
            50                  55                  60

        Trp Asp Thr Ala Gly Gln Glu Arg Tyr Arg Ala Ile Thr Ser Ala Tyr
        65                  70                  75                  80

        Tyr Arg Gly Ala Val Gly Ala Leu Leu Val Tyr Asp Ile Ala Lys His
                        85                  90                  95

        Leu Thr Tyr Glu Asn Val Glu Arg Trp Leu Lys Glu Leu Arg Asp His
                    100                 105                 110
```

        Ala Asp Ser Asn Ile Val Ile Met Leu Val Gly Asn Lys Ser Asp Leu
            115   120   125

5

        Arg His Leu Arg Ala Val Pro Thr Asp Glu Ala Arg Ala Phe Ala Glu
            130   135   140

10   Lys Asn Asn Leu Ser Phe Ile Glu Thr Ser Ala Leu Asp Ser Thr Asn
        145   150   155   160

        Val Glu Glu Ala Phe Lys Asn Ile Leu Thr Glu Ile Tyr Arg Ile Val
15   165   170   175

        Ser Gln Lys Gln Ile Ala Asp Arg Ala Ala His Asp Glu Ser Pro Gly
                        180   185   190

20

        Asn Asn Val Val Asp Ile Ser Val Pro Pro Thr Thr Asp Gly Gln Lys
                    195   200   205

25

        Pro Asn Lys Leu Gln Cys Cys Gln Asn Leu
            210   215

30